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International Holds Mergers Must Cut Costs

Vice-President J. L. Fearing Views Efficiency In Operation and Conservative Capitalization Essential—Declares Savings Would Be Assured By Running Most Efficient Units to Capacity, Maintaining Fairly Moderate Plants On Lower Scale, and Eliminating Mills With Excessive High Costs

Consolidation of the Canadian news print companies, unless it will result in definite savings in operations even under present conditions, would be of no benefit to the industry in its present serious predicament, according to a statement issued to United States customers of the International Paper Company by Joseph L. Fearing, vice-president and general sales manager of the company.

In his statement Mr. Fearing declares that numerous conferences have been held among Canadian business men, others as well as news print representatives taking part in the meeting, to save what is now Canada's largest manufacturing industry from ruin by the competition and overproduction that now threaten its welfare.

In the conferences seeking a remedy for the ills of the industry, Mr. Fearing says that consolidation of the more important units has been suggested as likely to provide the surest correction for conditions. It has also been argued, he declares, that no scheme for consolidation would be worth while unless the set-up is based on a very conservative capitalization combined with the operation of the most efficient type of low cost mills.

Says Costs Must Be Cut

"Knowing that the industry today is suffering from the effect of low prices, greatly aggravated by low-operating ratios and that, with only a few exceptions, fixed charges are not being earned," he says, "it is realized that no consolidation would be of any value unless it could show very substantial savings. Such savings, it is felt, would be assured by running the most efficient units to capacity, while maintaining the fairly moderate ones on a lower scale and eliminating those with excessively high costs.

"Furthermore, it is believed that other savings not now possible could be developed—such as, for example, the elimination of excessive freight costs now caused by an illogical geographical distribution of tonnage; the avoiding of unnecessarily heavy inventories due to the present tendency to overestimate future requirements; the coordination of selling and manufacturing under the most expert leadership available; together with the elimination of many other losses and leaks that now exist but which could be prevented.

"Not only would a consolidated company be able to produce and distribute news print paper more economically, but it would also be far better equipped to alleviate the distress and actual suffering which present-day conditions bring upon the workmen at mills which are forced suddenly to shut down without an opportunity adequately to cope with the social problems that a shutdown entails."

Currency Values Discussed

Asserting that tremendous pressure has been put upon the news print mills of North America to reduce prices because of the slump in advertising, and that when price reductions are accompanied by world-wide depression and unusual idle mill capacity, together with an imminent increase in freight rates, they must inevitably involve serious financial risks to many important manufacturers of white paper, Mr. Fearing says no publisher should be misled by sensational statements and propaganda to believe that the present high purchasing power of the United States dollar actually means a corresponding reduction in costs at Canadian mills.

"Thus far, the conferences in Canada have definitely indicated a very serious determination to reorganize the industry so that it can be operated profitably at low and stable prices," he concludes. "Unless these fundamentals are used as a cornerstone, and unless the other policies in which International believes and to which it had adhered in recent years are written into the code of the proposed consolidation, we shall continue to paddle our own canoe."

To Investigate Pulp

WASHINGTON, D. C., December 23, 1931—The United States Tariff Commission has been ordered by the Senate to make an investigation of the importation of pulp into the United States. The following resolution, which was introduced by Senator McNary, of Oregon, was passed by the Senate:

"Resolved, That the United States Tariff Commission is directed to make a thorough investigation of the effect of the depreciation in value of foreign currencies upon the importation into the United States of ground wood pulp, chemical wood pulp, unbleached or bleached, and pulpwoods, and to report to the Senate as soon as practicable the results of such investigation."

Activities of Fox River Valley Paper Mills

Hoberg Paper & Fibre Co. Asks Bids for Construction of New Dock, 400 Feet Long—Remodeled Turbine Plant At Old Sulphate Mill of Thilmany Pulp & Paper Co. Completed—Addition to Main Mill Building Included In Construction Program

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., December 21, 1931.—Bids have been requested by the Hoberg Paper and Fibre Company, Green Bay, Wis., for the construction of a new dock on its properties. The dock will be 400 feet long and about $50,000 will be spent on the improvement. This year the company has received some of its pulp by direct boat shipment and finds it advantageous to equip itself for more adequate handling of water transportation. This will be all the more the case upon completion of the Great Lakes-St. Lawrence Waterway, so larger ocean going vessels can distribute and collect materials at Great Lakes ports. Some of the ships bringing Swedish pulp have landed at the Hoberg mill. Only Green Bay contractors have been allowed to bid on the project as a means of helping home employment and as much hand labor as possible is to be used.

The Hoberg company looks for a satisfactory business volume in 1932 although not anticipating any rapid recovery, according to J. M. Conway, president and general manager, who revealed his sentiments at a banquet last week in connection with the company's annual sales conference. He expressed appreciation to the salesmen for the co-operation extended in keeping up a satisfactory mill capacity but declared greater effort will be necessary this year to maintain the 1931 sales record. Fifty-eight persons attended the banquet. For entertainment they were shown a motion picture entitled, "From Evergreen to Evergreen," a pictorial representation of the processes involved in making paper at the Hoberg mills. Timber cutting scenes in the woods of Northern Wisconsin opened the picture, and the wood was followed through its various travels and conversion processes until it becomes paper. Conferences on sales problems, policies and plans for 1932 were conducted by H. J. Wintgens, vice president and sales manager.

Thilmany Improvements

Moving of the two paper machines from the Wisconsin tissue division of the Thilmany Pulp and Paper Company at Appleton to the main mill at Kaukauna, Wis., will be started shortly after January 1. The exterior of the remodeled turbine plant at the old sulphate mill is completed and as soon as the concrete floor has been placed, the Appleton mill will be dismantled. It is expected the work will take about one month and that operations can be resumed early in February.

The construction crew at the Thilmany plant has been increased to 100 men so as to rush the work to completion, under the direction of the Permanent Construction Company. The new building at the sulphate plant where the new paper machine is to be housed has reached the stage where the steel framework is being erected. The structure will be under roof within about ten days. A new roof is also being constructed on the transformer room.

A third unit of the construction program is an addition to the main mill building. This will be of cut stone front to harmonize with the present building, and the side walls are of brick. Steel frame work is being used. Additional office space and larger warehouse facilities will be made possible.

After all these operations are completed, the Thilmany company will be in a position to utilize its entire pulp mill output on its own paper machines and will establish an enlarged line of products for the market. Some specialties are being developed at the present time. Economy of operation will also be accomplished, because the handling and freighting of pulp from Kaukauna to the Appleton branch will be eliminated.

News of the Trade

Certificates were presented to 108 employees of the Rhinelander Paper Company, and four employees of the Daniels Manufacturing Company, Rhinelander, Wis., at the closing meeting of the safety school conducted in that city last week. These represented regular attendance at the sessions, at which prominent speakers gave addresses. The closing banquet was attended by about two hundred workers from Rhinelander industries. The speaker was Elwood T. Bailey, of Los Angeles, Cal., widely known platform lecturer. He dramatized the factors of safety and their value to the industries, the workmen and the community.

The Bergstrom Paper Company, Neenah, Wis., followed its annual custom of erecting a large Christmas tree on top of its mill, and equipping it with a large number of colored lights. The tree is visible for several miles.

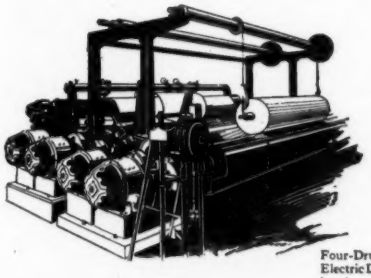
A social event of no small importance took place last week at Eau Claire, Wis., when Mr. and Mrs. W. L. Davis, Sr., celebrated their golden wedding anniversary. Mr. Davis is president of the Dells Paper and Pulp Company, and is an old familiar figure in the industry of Wisconsin, with which he has been associated for about sixty years. Mr. and Mrs. Davis were married at Neenah, Wis., December 14, 1881. A reception was held at the Davis homestead, where large numbers of friends extended their congratulations. Mr. and Mrs. Stephen R. Davis, and Mr. and Mrs. W. L. Davis, Jr., assisted in receiving. Among the guests was Mrs. Loa Jackson, of St. Paul, Minn., who was a guest at the wedding fifty years ago.

S. F. Shattuck, vice president of the Kimberly-Clark Corporation, Neenah, Wis., besides being one of the pioneers in the industrial safety movement, also has as his hobby the development of character in boys and young men. For the last 27 years he has sponsored the Boys Brigade of Neenah, and has made possible for more than 1,000 boys and young men over this period of time an attractive clubhouse, a summer camp on Chain o'Lakes, Waupaca, Wis., and many activities, including semi-military drill, amateur yachting and other sports. Through his efforts, the city of Neenah is building a twenty acre playground adjacent to one of its high school buildings, where every kind of out door sport can be enjoyed.

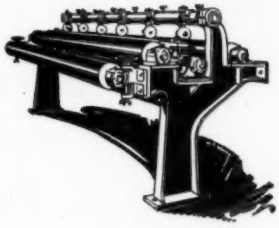
Because of this outstanding service, Mr. Shattuck has been honored by the National Council of the Boy Scouts of America with the Silver Beaver award. The presentation was made at a meeting at Appleton, Wis., when the Fox River Valley Council, Boy Scouts of America, held its annual banquet and business meeting.

Patrick J. Devlin, foreman of the yard crew at the Thilmany Pulp and Paper Company, Kaukauna, Wis., for the last twenty years, died last week following an illness of two months. He was 52 years of age.

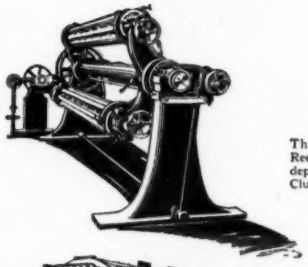
PAPER MAKING MACHINERY



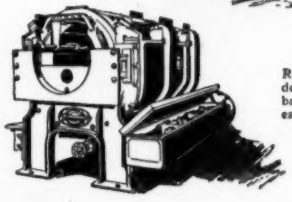
Four-Drum Winder with Electric Drive. Controls roll hardness automatically.



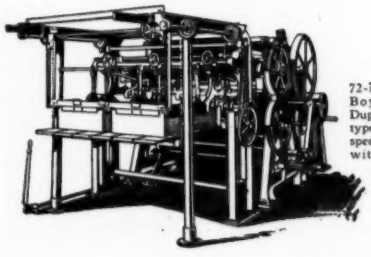
Ball Bearing Slitter Part. Quick-removable top and bottom blades give greater production with less waste.



Three-Drum Revolving Reel. Each drum has independent M&W Friction Clutch drive.



Rotary Screen, with divided diaphragms giving balanced movement and easy flow.



72-inch single Lay Boy and Cutter. Duplex and Diagonal types also made. High speeds may be used with wide cutters.

Fourdrinier Paper Machines
Quick changing wire features

Cylinder Paper Machines
for all grades of board

Bevel Gear Drive Stands
with Ball Bearings and M & W High Speed Friction Clutch

Brass Collapsible Winder Shafts
Non-sticking; quick-changing

"Criss Cross" Shower Pipes
High efficiency with low water consumption

Disc Washers, new type

Drum Winders
Two-Drum type for small rolls
Four-Drum type; electric or belt drive
Two-Drum and Four-Drum Supercalender Winders

High Density Bleaching Process
Wolf, Bellmer, Fletcher

Hoffman Couch Rolls
Superior to rubber rolls

Pumps: Stuff; Suction; Centrifugal

Reels
With 2, 3, 5 or 6 drums: Upright and Revolving types

Rotary Screens
Clean paper with minimum maintenance

Save-Alls
Economical, efficient closed system

Single and Duplex Cutters
High speeds—all widths—all kinds of paper

Single and Duplex Lay Boys
Increase cutter output; reduce finishing room costs

Slitter Parts
New ball bearing type, with removable Slitters, saves slitter tears

Wire and Felt Guides
Ball and plain bearing types for all speeds

Wood Suction Box Covers
Save wear of the Fourdrinier wires

M & W Friction Clutches and Speed Changes
Information and Bulletins on request

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Boston Paper Market Exhibits Steady Trend

Despite Influence of Inventory-Taking Period, Demand for Various Standard Grades of Paper Is More Active In Some Quarters—Frequent Inquiries for Future Delivery Indicate Booking of Satisfactory Proportion of Actual Orders

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., December 21, 1931.—A cheerful feeling prevails in the Boston paper trade. As usual, inventory-taking influences the volume of orders, but at the same time, in some cases at least, there is a little more business here and there. Inquiries are a trifle more frequent and wholesalers are hopeful that a good proportion of them will develop into actual orders. In some instances there is not a normal amount of orders from printers, but purchases of occasional good-sized quantities are encouraging.

Readjusting Prices

Boston merchants are much occupied readjusting their prices according to revisions made by the manufacturers of rag bond papers. Dealers in box coverings have been selling a rather gratifying amount of this line. Fancy wrapping papers for holiday purposes have been moving rather well. There is a fair volume of orders for kraft.

An average amount of box board is moving for the time of year. No change of values is reported.

Paper Stock Dull

There is little change in the paper stock situation, dullness continuing. Values are practically the same as those of a week ago, but there is a rumor that a cut is to be made in No. 1 mixed paper and old newspapers. No. 1 mixed paper is now quotable down to $4.00, or a trifle higher, per ton, and it is reported that it will be marked to a figure below $4.00.

Wheelwright Company Makes Fair Showing

The George W. Wheelwright Paper Company, recently granted an indefinite extension of their receivership, are to report at three-month intervals, according to a stipulation. The original four months' period terminated December 10. It is understood that the company made a very fair showing during the first three months under receivership, considering conditions. The Ciel Sales Company, of Leominster, its subsidiary, has been liquidated in part at least and obsolete inventory has been sold. The receivers, George W. Wheelwright, Carl F. Woods and George Alpert, are given authority to make loans which were originally specified as permissible by the Court.

President Floyd H. Blackman, of the New England Paper Merchants Association, has appointed the following as members of a nominating committee to bring in names of candidates for officers of the organization, to be voted on at the annual meeting in January: Arthur E. Ham, chairman, M. O. Byrne, C. A. Esty, A. W. Blackman, and H. L. Carter. All the members of the committee are past-presidents of the association.

Henry L. Goodman is mailing to the trade a new Marvellum book, No. 66, on Gold Relief box coverings, made by the Marvellum Company, Holyoke, Mass. Mr. Goodman is also sending out two new books of his own, Nos. 101 and 102, containing Capitol box coverings.

Charles A. Morrison, of the box board sales department in New England of the Robert Gair Company, with headquarters at the plant in Haverhill, has been ill at his home in that city and at a hospital for about two weeks.

The Paper Converting Company, Inc., Boston, has been incorporated. There are 5,000 shares without par value. President, William P. Yanes; treasurer, Benjamin A. Feinberg, 58 Crawford street, Boston, and Alfred Gonsalves.

Demand in Indianapolis Spotty

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., December 21, 1931.—While paper demand here remains somewhat spotted, the demand for bags and wrapping paper during the last week has been lively. This is due largely to Christmas business, which appears to be equal to last year at least.

Just now the trade is paying close attention to printers, for most of the counties in Indiana are preparing to award the annual printing contracts. These contracts mean much to the printer and also to the paper merchant who provides the printer, since most of the paper is of high quality and in some of the counties the contracts run into thousands of dollars.

Demand for news print from the rural papers during the last two weeks has been good and will compare favorably with last year. Additional advertising has featured both large and small papers. There is a noticeable lack of interest on the part of the large consumers, however, to make new contracts, even with the low price of print.

Parchment and waxed papers, particularly the latter, are moving in fair volume. The bread wrapper demand is good and the factories in Indiana seem to have about all they can do, with more and more bakeries being compelled by competition to wrap their bread.

Distributors in the fine paper field are finding a very spotty condition just now. There is much wrangling over prices but there is little disposition to make concessions. Most of the local trade will go into inventory with low stocks, but these will be well balanced. They are following the trend of the consumer, who is buying from hand to mouth and shows no disposition to change.

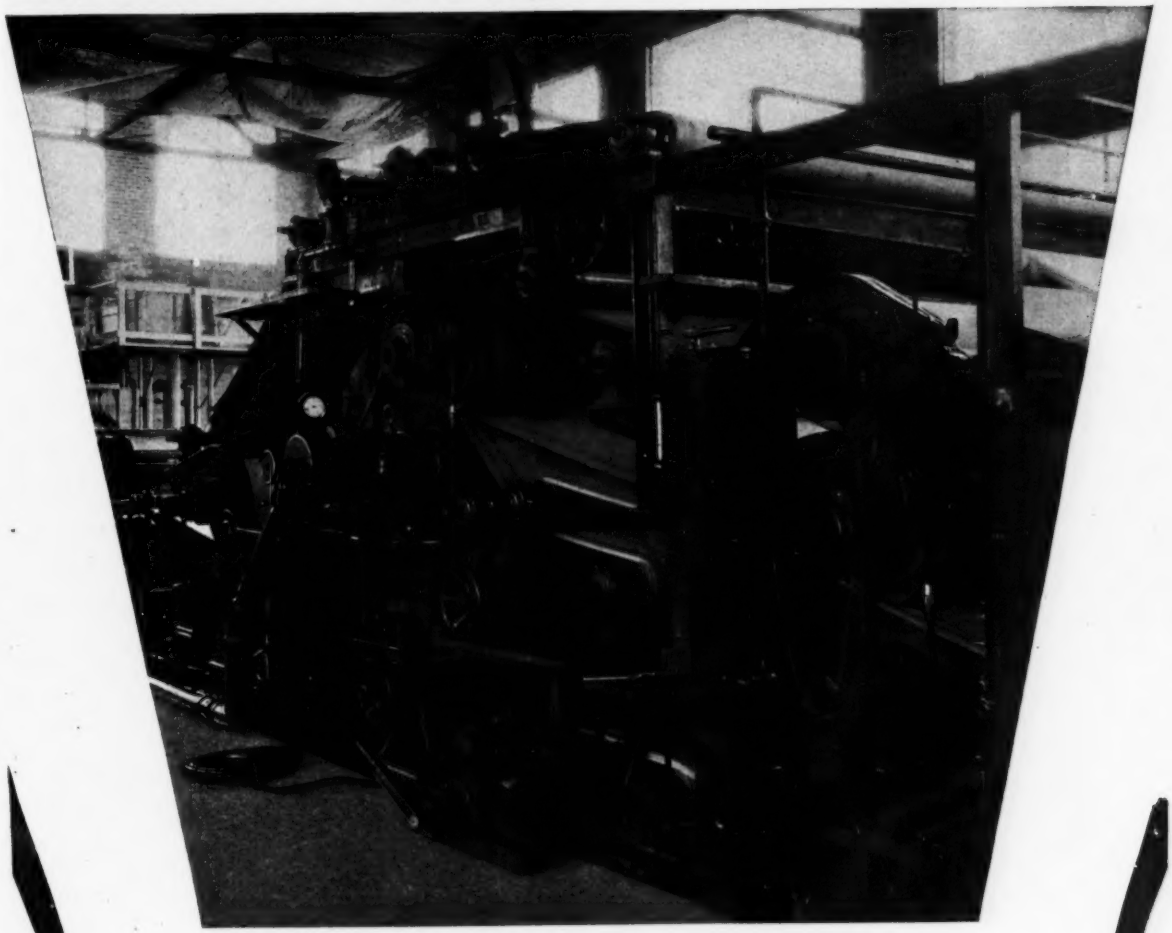
Most of the trade have succeeded at working down their warehouse stocks of rags and paper to a point lower than midsummer, but because of prices paid for stock little money has been made.

Union Bag Asks Tax Revision

HUDSON FALLS, N. Y., December 21, 1931.—The Union Bag and Paper Corporation has started court action against this village in an effort to have the assessed valuation of its property reduced. A writ of certiorari obtained by the company is returnable at a session of Supreme Court early in January. Assessments against the property are alleged to be excessive and a reduction of $285,400 is sought on several units. The following reductions are sought: bag factory, $100,000; Howland store house, $40,000; No. 5 mill and storehouse, $42,000; new bag factory, $90,000; $4,000 on land and dwellings and $7,000 on property used as a clubhouse.

A similar action is under way by the Union Bag and Paper Power Corporation which claimed that its property is over-assessed $392,908

DOWNINGTOWN



SUCTION ROLL · · ·
· · · ON TISSUE

Regardless of the kind of paper you make, the installation of Downingtown Adjustable Suction Rolls can undoubtedly be justified on a basis of production, economy or quality. This Suction Roll is installed in first press of the Downingtown Removable Fourdrinier at the A. L. Adams Paper Co., Baldwinsville, Mass. Other manufacturers of specialties have also found the Downingtown Suction Roll to be a sound investment. Our Catalog No. 103 completely describes the features of this modern suction roll. The Downingtown Manufacturing Company, Downingtown, Penna.

Timber Claims Against Newfoundland Dismissed

Mr. Justice Kent Rules Against Reid Newfoundland Co., Gander Valley Power & Paper Co. and Others in Suit for Damages Aggregating $10,000,000 Because of the Issue of Writs Causing Forfeiture of Certain Licenses to Cut Timber

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., December 21, 1931.—From St. John's, Newfoundland, it is reported that Mr. Justice Kent has handed down a judgment ruling out of court, as far as any grounds for claim are concerned, an action brought by the Reid Newfoundland Company, Limited, Mines and Forests Limited (Newfoundland), Gander Valley Power and Paper Company, Limited, and the Royal Trust Company, against the Government of Newfoundland for damages amounting to $10,000,000, because of the issue of writs claiming forfeiture of certain licenses to cut timber held by the petitioners. Briefly the judgment is that the petitioners, assignees of certain licenses to cut timber, were not disturbed in the quiet enjoyment of the said licenses to cut timber because of the writs issued. The learned judge rules that the licensees were not prevented, by the issue of the writs, from selling the timber licenses, or cutting the timber, or developing in any way the areas under timber license. Solicitors for the petitioner, interviewed, stated that they were not in a position to say whether an appeal to the full bench would be entered or not.

The history of these timber writs is rather interesting. In September, 1927, an act was passed by the Monroe administration governing "The Granting of Lands and Rights in Labrador," which stated that no grant of any kind, to any land, timber, or waterpower on Labrador should be made without the consent of the Legislature, thus removing from the Governor-in-Council the power to grant rights in Labrador, as had previously been done with Newfoundland rights.

As certain licenses to cut timber on Labrador had been held previous to the Labrador award, and as the holders protested that the lack of settlement of this question had prevented them from carrying out plans for development, the government consented to grant a further three-year extension of the period under which development had to begin. This three-year period expired in March, 1930. With the expiration of that extension writs claiming cancellation were issued against the holders of these Labrador limits.

As Labrador was held to be no longer a dependency of Newfoundland, but an integral part of the country, the same action was held to apply to the island of Newfoundland, and hence the writs against similar holdings in Newfoundland for non-fulfillment of conditions. Among these were licenses held by the Reid Company and subsidiaries, who claimed that by extension granted under act and executive authority the period under which timber licenses were held had been extended to September 15, 1930.

The matter of Labrador licenses is still under judicial consideration by the Privy Council, as the result of an appeal from the Newfoundland Supreme Court and the judgment will have a bearing of some importance upon the whole question.

Some time ago an action by the government against the Reid Company and subsidiaries for cancellation of license was not sustained in the Supreme Court. The government gave notice of appeal, but no direct action has yet been taken, as it is presumed the result of the present appeal before the Privy Council is first awaited.

It is noteworthy in this connection to recall the undertaking given by Mr. Alderdice in his 1928 manifesto. He said: "Previous to the last administration it was the practice of the government to lease timber limits for a nominal sum to any applicant who, . . . might dispose of his interests for a sum far in excess of his so-called rentals. In future Newfoundland will do the selling and the full market price in every case will be required."

Operating Ratio Improved

The operating ratio of Canadian news print mills improved slightly in November, being 56.8 per cent of rated capacity, as compared with 55.1 per cent in the previous month. For the eleven months of the current year, however, the operating ratio was 58 per cent of capacity, as compared with 70.3 per cent in the corresponding 11-month period of last year.

New Pulpwood Association

From St. John, N. B., it is announced that the New Brunswick Pulpwood Producers Association has been organized embracing all those engaged in the industry in New Brunswick who may wish to join. Problems of the shippers, particularly relating to freight rates, are to be taken up by the body. An effort is to be made immediately to try and secure a reduction in freight charges. Ewart C. Atkinson, M.L.A., Fredericton, has been elected president.

N. B. Lumber Cut

According to a published statement the lumber cut in New Brunswick this winter may be double that predicted earlier in the season. The prospect, it is stated, is that, instead of the 67,000,000 feet cut predicted, because of the prevailing state of the industry, a cut around 125,000,000 feet may be made. It is said that the upward trend in the Dominion is a basis for belief that there will be a greater demand for lumber next year and there are expectations that in the near future the market in the British Isles will be better. It is further stated that the long lumber industry in the province seems to be ear-marked for some kind of a revival in addition to the production of lathwood.

Some operators, it is said, who had not intended to cut, are sending crews into the woods, and, in general, a fair share of activity seems to be predicted after two seasons in the doldrums.

The truth or otherwise of this is for the immediate future to determine.

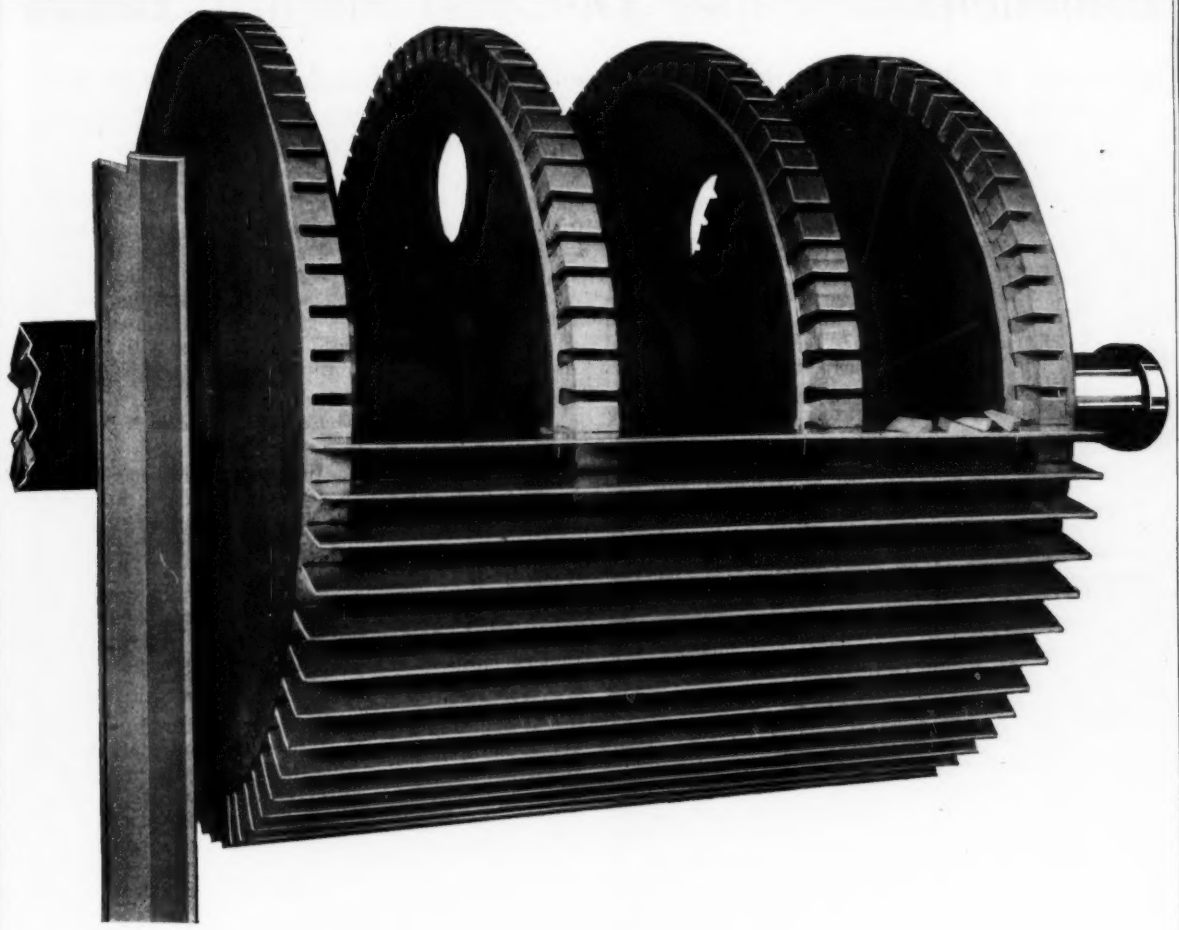
Seaboard Mill Celebrates First Anniversary

[FROM OUR REGULAR CORRESPONDENT]

BANGOR, Me., December 21, 1931.—The anniversary of the opening of the Maine Seaboard Paper Company one year ago was observed Saturday night, December 5, with a banquet and smoker at the Jed Prouty Tavern.

Officials, heads of departments and prominent business men were present. C. F. Bagley, vice president of the organization, presided as host. Among the guests were Mr. Stafford of Rice, Barton & Fales, Worcester, Mass., the firm that furnished and installed the paper machines.

At the conclusion of the dinner each of the guests gave a short speech complimenting the mill on its progress.



ONE THOUSAND

Dilts Patented Bandless Rolls have passed the thousand mark and are used on almost every class of paper. All steel heads, no loose bars, no rings, no bands, no weak points, no bad features, refilled right in the beater, the best and strongest roll built. We can rebuild your old rolls to the Dilts Patented Bandless type. Your new beaters should be equipped with Dilts Patented Bandless Rolls.

— Dilts —

MACHINE WORKS Inc. FULTON, N.Y.

"Your Paper is made in your Beaters"

Philadelphia Paper Demand Slightly Better

Improvement Is Looked Forward To in the Coming Year—Although Some Lines Have Hardened the Price Situation Is Not Yet Satisfactory—Unusual Expansion in the Conversion of Cellophane Products Is Reported—Firms Make Plans for New Year

PHILADELPHIA, Pa., December 21, 1931.—With the clearance of stocks among the dealers effective in the holidays, the trade is looking ahead to betterment in the coming year. The balance of the year will be given over to the clearing of stocks on hand and to winding up of 1931 business. Though a few of the lines have hardened in prices in the late year, they still are far below a stabilized valuation that will enable the industry to conduct business at appreciable margins of profits.

Kraft, which has been most prominent in the erratic changes in prices has steadied at $2.62½ for the Southern made products and while the lower prices are maintained on these there are some Northern mills which will not accept orders under a set valuation of 2¾ cents per pound no matter how large the purchase. This is particularly true of Michigan mills from where is sent the information to Philadelphia dealers that they are determined to maintain to that price as a minimum.

Dealers in fine papers report that they are having spotty demands with alternating days of large and small orders, but that business is slightly better from out of town consumers. Local publishers and larger printers are taking advantage of the low prices and placing a fair volume of contracted orders for the early weeks of the New Year in low priced book papers and coated grades.

Among the papers where changes in prices are made this week, there are such grades as No. 2 white tissues now off 10 per cent and containers of many type now reduced from 10 to 15 per cent. Paper dealers state it is difficult to collect as many consumers are tied up in bank failures and unable to get funds to meet requirements. Some of the paper merchants will not accept orders where there is not a well established credit situation among the consumers. But despite these adverse conditions the trade is more optimistic and looks ahead to the New Year hopefully believing that the worst is past and that the coming year will bring a slowly rising business.

Cellophane Products Show Expansion

There is one division of the industry which is forging ahead despite the adversity of the present. Those engaged in conversion of cellophane products are making headway as these trade accessories grow in popularity and plan even broader scale of operations and installation of equipment in the new year. Such firms as the Thomas M. Royal & Co., Inc., the John M. Driver Division of Milprints Products Inc., the American Bag and Paper Company, Paramount Paper Products Inc. and Benjamin C. Betner Company, all have improved and extended units for the production of cellophane bags and wraps in the last few months and are to add in the coming year to present capacity.

Huff Paper Co. Progresses on Cellophanes

Among the paper distributors showing progressive advancement in the cellophane lines is the Huff Paper Company, Delaware Avenue and Spring Garden street. Recently the firm took over the Continental Paper and Bag Corporation's line of cellophane products including bags of all styles, colors and shapes in plain and printed cellophane and cellophane window bags. Ben La Pites, head of the cellophane department reports these are being favorably received here and stocking of the lines has been expanded to meet the rapid growth of demands. The Continental Corporation has been branching out into the cellophane window bags and wraps and is now prepared to meet all needs of consumers for these with staple stocks or special orders as desired and the Huff Company is equipping accordingly.

Benjamin C. Betner Co. To Expand in New Year

The Benjamin C. Betner Company, with a large plant at Devon, Pa. along the railroad siding, has been working ahead for the new year's developments in plant expansions and addition of new lines. Benjamin C. Betner, head of the firm will announce these shortly after New Year. The firm has been enjoying a business that required double working shift throughout recent months on its general line of bags in glassine and other transparent materials including its duplex coffee sacks, tea, bakery and confectionery garment and chocolate coating bags..

Wolf Bros. Bags Distributed by Zellerbach Paper Co.

The specially patented bags manufactured and owned by Wolf Brothers, 340 N. 12th street and marketed as the Handelok Carry Bag, has been extended in distribution under the Zellerbach Paper Company, which now handles the local firm's bag business through its various divisional selling offices on the West Coast. There has been a like increase in Pacific Coast distribution of the special Wolf Brothers fancy and exclusively designed paper supplies in any of the various styles or sizes of bags and envelopes, of the local manufacturers.

Standard Drinking Cups in Dispenser Package

Wolf Brothers own make of paper cups, known as the Standard Drinking Cup has been increased in distribution as result of the attractive dispenser package which was designed to combine shipping container and utility for the consumers. The distribution is now the largest in the firm's history of many years in the paper converting industry. Jobbers have been giving these enthusiastic calls because of its attractive printed package and its facilities of easy, economical and ready merchandising characteristics. The cups are also designed to carry printed advertising matter on the face or safety slogans for factory workers features that win consumers patronage to the drinking devices.

Paramount Paper Products Adds Full Cellophane Line

A full line of cellophane products in bags and wraps for the baking and other food trades and merchants use has been added to the lines made by the Paramount Paper Products Inc., 3rd and Callowhill streets. These include bags and wraps of small to full sizes for this class of merchandise. They also include sacks for paper doilies, and felt papers distributed by the paper industry. The Paramount Products added equipment to its bag plant this fall for converting cellophane combination bags and wraps and in the past month additional sizes have been added so that there will be a complete line of products ready for the new year's extension in business. A. B. Kehr, secretary and

sales manager of the company is also in charge of the cellophane department.

Kardon Bros. Distribute Full Line of Papers

Kardon Brothers, recently returning to the original headquarters of the firm at 114 S. 2nd Street, where the business was founded more than 25 years ago, have again become distributors of a full line of wrapping papers, boxes, specialties and bags. The present members of the firm are Jacob Kardon and his brother Manuel Kardon, sons of the founder, Harris Kardon, for many years engaged in the distribution of wrapping papers, bags and in recent years confining his attention to manufacture of paper bags, as head of the Central Paper Bag Manufacturing Company, whose plant was taken over by the National Bag and Paper Company, and located at 1732 N. Blair Street.

National Bag & Paper Co. Liquidated

Following the liquidation of the business of the National Bag and Paper Company, the plant of that concern and its equipment has been taken over by the owners of the building and units, the Kardon Brothers, formerly manufacturers of bags as the Central Paper and Bag Manufacturing Company at 1732 North Blair street. Kardon Brothers will continue to hold the property intact but have not decided to resume operations under their supervision. The plant and building will be leased to other tenants. The National Bag and Paper Company, became involved in receivership proceedings a few months ago and its assets disposed of under the bankruptcy proceedings. The equipment and the building were leased to the National Bag & Paper Company, by Harris Kardon, owner and former head of of the Central Paper and Bag Manufacturing Company.

"The Agitator"

The Noble & Wood Machine Company, Hoosick Falls, N. Y., has just issued the first number of a new publication, *The Agitator*. This publication, which will be issued periodically, will be mailed to pulp and paper mill executives and key men in the mills throughout the United States and Canada. According to an editorial note in the first issue, it will carry the gossip of the industry, news of new developments of interest, notes on trade conditions and first hand information about new Noble & Wood equipment.

The first issue of *The Agitator* tells in considerable detail of two new items of equipment which are now being produced by Noble & Wood. One is a new and improved type of stock consistency regulator which, it is claimed, controls stock consistency within remarkably close limits.

The other is the Feeney Pressure Regulator for jordan engines. This is a device which controls the pressure under which stock is refined in the jordan. The regulator, it is stated, is actuated by a weighted arm and a diaphragm valve which operates automatically to maintain a predetermined pressure of stock entering the jordan. It is claimed that by the use of this regulator identical refinement of all the fibers is assured, resulting in smoother, more uniform stock, higher tests in the finished product and greatly increased life of jordan fillings.

Another article of interest in the initial issue of *The Agitator* is a description of the Noble & Wood experimental mill, a fully equipped mill available to the industry for testing and experimental work. Copies of *The Agitator* may be had by writing the Noble & Wood Machine Company, Hoosick Falls, N. Y.

New York Trade Jottings

Otto Kress, Director of the Institute of Paper Chemistry at Appleton, Wis., is a New York visitor this week.

* * *

Horace A. Sheesley, vice-president of the International Paper Company, New York, and vice-president and general manager of the George & Sherrard Paper Company, of Wellsburg, W. Va., has resigned.

* * *

The regular quarterly dividend of $1.75 per share on the 7 per cent first preferred stock of the corporation of Henry Lindenmeyr & Sons, 480 Canal street, New York, was paid out of earnings to stockholders of record as of December 17, 1931.

* * *

"It Might be Better in 1932" is the title of an amusing and interesting chart perpetrated by Roy and Janet Kellogg and went to their many friends as a Christmas greeting. Mr. Kellogg, of course, is the genial secretary of the News Print Service Bureau, New York.

* * *

The Foreign Paper Mills, New York, which has been connected with the sole sale of the Schopper Standard Paper Testers, is now known as Testing Machines, Inc., and is occupying much larger quarters at 314 Broadway, New York, where the complete line of Schopper Testers is now on display.

* * *

Majestic Mills Paper Company, Inc., has removed its offices from 462-464 Broome street, to 138-142 Franklin street, corner of Varick street, New York. The telephone number remains the same, Canal 6-1475. It is announced that the company, in future, will be known as Majestic Paper Corporation.

* * *

J. A. Quinlan, manager of the Traffic Department of the St. Regis Paper Company, made an important address before the Eastern Division of the Salesmen's Association of the Paper Industry, at the regular weekly luncheon and meeting, held in George's Restaurant, New York, last Tuesday. Mr. Quinlan discussed in a concise manner the effect on the paper industry of forthcoming rate increase.

* * *

Munising Paper Company, manufacturers of Caslon Bond, announces the appointment of Conrow Bros., 64 Wooster street, New York, as additional New York agent for the Caslon line and other Munising papers. It also announces the appointment of the Bond-Sanders Paper Company, Nashville, Tenn., as agent in the Nashville territory. The Munising Company, since September 1, has appointed nine new agents to handle the Caslon and associated lines. The Munising Company announces that its Caslon lines have shown an increase in sales over 1930.

Albemarle Staff Changes

BOSTON, Mass., December 21, 1931.—Blair B. Stringfellow, Jr., who has been sales representative in New England of the Albemarle Manufacturing Company, Richmond, Va., since May, 1929, with headquarters in the Chamber of Commerce Building, Boston, has been appointed manager of the New York office of the company, the promotion to take effect January 1. Mr. Stringfellow will have supervision of all kraft sales in the East. Arthur Cherry, superintendent of the Riverside and Hollywood mills of the company at Richmond, will become the sales representative in New England.

Glazed and Fancy Paper Association Meets

The usual quarterly conference of the Glazed and Fancy Paper Manufacturers Association, affiliated with the American Paper and Pulp Association was held Wednesday, December 2, in the Hotel Kimball at Springfield, Mass. After luncheon Colonel B. A. Franklin of the Strathmore Paper Company and president of the Writing Paper Manufacturers Association gave a splendid talk about the current business situation and the work which is being done by the Writing Paper Manufacturers Association.

Three new members were reported in the Distributors' Division of the Association and more distributors were reported as anticipating joining. The Association budget for 1932 was adopted. The bulletin, "Glazed and Fancy Selling," which has been issued six times during the past year was the subject of much discussion; it was voted to discontinue this publication and to try to develop some other idea.

Sheeting Charges

The matter of a plan for sheeting charges which could be used throughout the industry and be comprehensive enough to include all sheeting situations had been referred to the executive committee. They reported that the Trade Customs which had been adopted in previous years already covered this completely and needed no further amplification. The secretary was instructed to send out communications to the industry in regard to this in the hope that the entire matter can be made clear to all concerned.

The Trade Customs as printed provide under Section 9 that extra charges are made for sheeting based on a ream of standard size which is 20 & 26, for sheeting standard rolls (26 inches) to lengths greater than 20 inches and for sheeting rolls wider than this standard the charge is to be proportionately greater than the basic rate. For Sheeting narrower rolls or lengths less than 20 inches the charge is to be the same as for 20 x 26. This can be stated by any company to their customers in one paragraph as follows:

"Our sheeting charge is —c per ream of 500 sheets or fraction thereof for 20 inch sheets cut from 26 inch rolls. For shorter sheets and/or narrower rolls the charge is the same for each ream cut. For longer sheets and/or wider rolls the charge is in proportion to the area."

Quantity Schedule

For the past year there has been expressed a desire for the development of a schedule of quantities on which price differences would be applicable. This matter had also been referred to the executive committee and they reported a schedule as follows with the recommendation that a committee be appointed for further study to report at the next meeting. It was decided that it is very likely that two schedules are needed, one for plain papers and the other for embossed, printed or fancy decorated papers. Two committees were therefore appointed each to report a schedule at the next meeting in February.

The schedule suggested by the executive committee is based on the fact that reams are only the unit of quantity measurement and rolls are the real physical unit of glazed and fancy paper. Companies vary among themselves in the size of roll used and the same companies vary in the size of roll used for different papers. The result is that rolls are commonly put up in two, three, or four reams. It is therefore indicated that the base price should be the price per ream of one full roll. Since there is some demand for one ream. quantities especially with the distributors and the mills who act as their own distributors, there is also needed a price for one ream. This price of necessity must be higher than the base price because it involves the time and expense of breaking a roll into a ream and leaving a broken ream on hand with certain risks of this broken roll being left in obsolete inventory. Hence this price for one ream should be considerably higher than the ream price for roll lots.

As rolls are in two, three, or four reams the quantities at which price differences can occur without breaking rolls would of necessity be ream quantities which are divisible by twelve, that being the lowest number that is divisible by two, three, or four reams. The following schedule was therefore suggested as one which corresponds with the above needs.

One ream .....higher than base price
One roll (2, 3, or 4 reams) .....base price
More than one roll to twelve reams less than base price
More than 12 reams to 24 reams ..further price reduction
More than 24 reams to 48 reams ..further price reduction
More than 48 reams to 96 reams ..further price reduction
More than 96 reams.....further price reduction

A day's production on the usual single width coating machine is around 100 reams. Therefore, quantities above 100 reams do not offer any substantial opportunities for savings in manufacturing cost.

Other Discussions

The problem of over-runs received some attention. The Trade Customs fully cover this and provide that normal over-runs or under-runs on special papers are to be expected by customers when ordering special papers. It has been the fixed custom for years in this and other industries for the customer to accept these quantity differences.

Small orders have been prevalent during the past few years with certain unfortunate growing tendencies due to business conditions. Any merchandiser knows that filling small orders is more expensive. Any manufacturer knows that making small orders is terribly expensive. The problem of the industry both from the standpoint of distribution and manufacturing is to lay the cards on the table with the customers so that they will know the facts and act accordingly.

It was evident during the meeting that the Trade Customs which have been developed during the past seventeen years by the association and the industry need to receive more attention in practice and more propagation among the customers. It was decided to print a new issue of these Trade Customs and circulate them in the trade.

The next meeting will be held Friday, February 19, in New York City. The morning session will be held at 10 o'clock followed by an afternoon session after lunch.

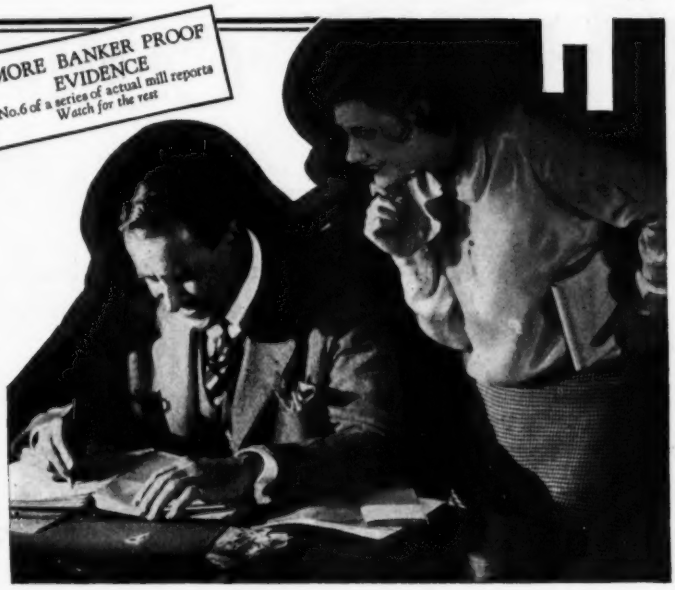
To Make Paper Machinery

[FROM OUR REGULAR CORRESPONDENT]

FORT EDWARD, N. Y., December 21, 1931.—Incorporation articles were filed this week by the American Paper Machinery and Engineering Works and the principal office is to be located at Glens Falls. The company is capitalized at $60,000. The principal stockholders are Harold D. Wells and Viola H. Wells, both of Glens Falls, and Herman G. Rohdo, of Queensbury. The former hold 120 shares of stock each and the latter 60 shares.

"Whee!... $6,865.80 SAVED by those TENSILASTIC ROLLS"

MORE BANKER PROOF EVIDENCE
No.6 of a series of actual mill reports
Watch for the rest



History is a record of past experiences. Its greatest value is as a guide to present and future conduct. Tensilastics are making rubber roll history. And mill men are profiting by the steady accumulation of evidence of the superior advantages and economies that result from installing Tensilastics.

For example, here is an excerpt from a report received during the past month from a Vermont mill. This is a news and kraft mill, with a daily output of 230,000 pounds. Comparing the performance of two Tensilastic covered press rolls with others used under identical conditions, the report goes on:

> "Tensilastic rolls giving excellent service... far better than competitive rolls. Superintendent states Tensilastic coverings run at least *twelve weeks between grindings against three weeks average on other coverings.* With three weeks grindings rolls last about three years between coverings."

Which indicates *four times longer life* for Tensilastics—*four times longer between grindings; four times longer between coverings.* While ordinary coverings need replacement in three years, the Tensilastics have *twelve years* potential service built into their sturdy structure.

And remember,—*the initial cost of Tensilastics is no higher than that of ordinary rolls.*

Extending this analysis through the potential twelve year life of the Tensilastic roll shows the following "Banker Proof" savings:

ORDINARY RUBBER PRESS ROLL

4 replacements at $705	$2,820.00
Interest, $2,820 at 6% (mean of 6 years)	1,015.20
Grinding every 3 weeks at $20	4,159.92
Interest, $4,159.92 at 6% (mean of 6 years)	1,497.60
Total cost, purchase and maintenance	$9,492.72

TENSILASTIC RUBBER PRESS ROLL

1 roll at $705	$705.00
Interest, $705 at 6% for 12 years	507.60
Grinding every 12 weeks at $20	1,039.92
Interest, $1,039.92 at 6% (mean of 6 years)	374.40
Total cost, purchase and maintenance	$2,626.92

A clear saving of $6,865.80 effected by Tensilastics,—or a reduction in gross roll cost of almost 75%,—*on each Tensilastic installed.*

Savings such as these are a natural result of our exclusive method of fabricating rubber rolls under strict laboratory control. This method has developed TENSILASTIC, the rubber compound that is super-resistant to oxidation, deterioration, distortion, corrugation, wear and abuse. Tests by disinterested industrial analysts have proven it tremendously superior to ordinary compounds in the long term endurance of its tensile strength and density.

You can enjoy these advantages in press rolls, table rolls, felt rolls, breast rolls, couch rolls, wire stretch and carrier rolls. Install Tensilastics . . . and cut roll costs and complaints.

Write for copies of
"The USE AND ABUSE of RUBBER ROLLS"
"DENSITY and CROWNING of PRESS ROLLS"
"TENSILASTIC and WHAT IT MEANS"

American Wringer Co., Inc.

Rubber Roll Specialists for More Than 40 Years

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TENSILASTIC
RUBBER ROLLS

T24

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Appleton, Wis.—The Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis., has work nearing completion on a new one-story bleaching plant at its Appleton mill, and plans to have the unit ready for service by the close of this month.

Dubuque, Iowa—The Maizewood Products Corporation, Railroad avenue and Salina street, manufacturer of wallboard and kindred products, using cornstalks as raw material, is considering the rebuilding of portion of mill, recently destroyed by fire with loss of about $125,000. including equipment and stock. Reconstruction is expected to cost close to a like sum. The factory is owned by the Maizewood Building Corporation, an affiliated interest. C. E. Hartford is plant manager.

Brooklyn, N. Y.—The Andy-L & L Paper Box Company, Inc., recently organized by Charles Percovitz, 1235 51st street, Brooklyn, and associates, plans operation of plant for the manufacture of paper boxes and containers. The new company is capitalized at $30,000. Harry Finkelstein, 1084 Newport street, Brooklyn, is interested in the organization.

Elkhart, Ind.—The Illinois Carton and Label Company, 2601 North Crawford avenue, Chicago, manufacturer of paper boxes and containers, labels and other paper goods, has awarded a general building contract to Kistner & Son, 914 South Main street, Elkhart, for proposed new plant at Elkhart, previously noted in these columns. Work will be placed under way at once. It will be one-story, 130 x 200 feet, reported to cost over $65,000, with equipment.

Cleveland, Ohio—The J. B. Pearce Company, Superior avenue, N. W., and West 11th street, wall paper products, is considering the early rebuilding of portion of storage and distributing plant, recently destroyed by fire with loss reported over $60,000, including equipment. Reconstruction will cost close to a like amount.

Manistee, Mich.—The Manistee Paper Box Company, recently organized, is considering operation of a local plant for the production of paper boxes and containers. The new company is headed by Glenn Larson and Charles L. Peth, both of Manistee.

Baltimore, Md.—The factory of L. Gordon & Son, 1059 South Paca street, manufacturer of paper boxes and containers, was damaged recently by fire. An official estimate of loss has not been announced. The damage will be replaced.

New York, N. Y.—The Princess Paper Box Company, New York, has leased a floor in the building at 131 Bleecker street, and will occupy for a new plant for the manufacture of paper boxes and containers.

Avery, Ohio—The Avery Paper Corporation, Avery, near Milan, Ohio, has started operations at its new local plant and plans to develop increased capacity at an early date. The building was formerly used for the manufacture of the Hoover potato digger and similar agricultural equipment, and has been remodeled and improved for the new line of production. The company was organized a few months ago and is headed by E. L. Hoag, Sandusky, as president and treasurer. James T. Begg, Cleveland, former congressman, is chairman of the Board of Directors of the company. The mill will give employment to about 50 men for initial operations.

Jersey City, N. J.—The Liberty Cork Company, Jersey City, recently organized, has leased the factory at 44-50 Bostwick avenue, totaling about 15,000 square feet of floor space, and will equip and operate for a new plant for the manufacture of cork board and insulation board products. It is expected to have the unit ready for service at an early date.

Chicago, Ill.—The Universal Stationery Company, 4313 Diversey avenue, recently organized with a capital of $500,000 and 20,000 shares of stock, no par value, plans operation of a paper converting plant for the manufacture of commercial and other stationery products. The company is headed by J. H. Smalley, P. W. Barnes and H. W. Hawes.

Canton, N. C.—The Champion Fibre Company, Canton, has surveys nearing completion for its proposed impounding dam across the Pigeon River, vicinity of Sunburst, N. C., about 4 miles from Woodrow. The dam will be 50 feet high and 300 feet long, and will be used in connection with water supply at the Champion mill, where an expansion program is now in progress to cost close to $1,000,000, with equipment. Reuben B. Robertson is president and general manager.

La Tuque, Que.—Fire recently damaged a portion of the sulphate pulp mill of the Brown Corporation, La Tuque, with loss reported at close to $10,000. It is planned to replace the damage at an early date.

Abitibi Canyon, Ont.—The Abitibi Power and Paper Company, Ltd., 88 University avenue, Toronto, Ont., has active work in progress on its hydroelectric power development on the Abitibi River, vicinity of Abitibi Canyon, and has placed an order with the Canadian General Electric Company, Ltd., 212 King street, West, Toronto, for a quantity of equipment, including controls, relays, disconnecting switches, circuit breakers, lightning arresters and allied apparatus.

Holmens Bruk, Sweden—The Holmens Bruk Paper Mill is running on a full capacity schedule, with full working force, and expects to continue on that basis for an indefinite period. The company is said to have some sizable orders on hand. The mill has been active throughout the past year and has carried out a number of improvements for modernization.

The New and The Difficult Processing Problems

IN CONNECTION WITH

Kraft
Glassine
Cellophane
Box Trims
Crepe

ARE BEING SOLVED WITH

WALDRON Equipment

Embossing Machines
Printing Machines
Napkin Machines
Crepeing Machines
Waxing Machines
Gumming Machines
Coating Machines
Festooning Machines
Pasting Machines
Impregnating Machines
Web Guides
Saturating Machinery
Color Mixing Equipment
Drying Machinery
Paper Rolls
Embossing Rolls

The genius of the chemist, plus the skill of the converter are steadily uncovering new uses, new products, new markets—for paper. Hundreds of the most profitable lines of popular products now look to the more progressive paper converters for their basic materials.

The progressive converters are those who recognize the necessity for maintaining equipment designed to cover the new requirements in processing. Older methods and older machines can frequently accomplish the desired results in fabricating and finishing for the modern materials and effects. But quality, quantity and the consequent profits from production are usually sacrificed. The cost of modernizing your equipment can be offset many times over by the value of the economies and advantages that are secured. Operations speeded up or the number cut down, time and labor saved, maintenance expense reduced. In some instances, less equipment now does the job.

To aid them in planning for more profitable production, converters are utilizing WALDRON'S advisory service to best determine their requirements. Waldron engineers are successfully solving the newest and most difficult processing problems. Inquiries treated in confidence.

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CHICAGO CENTURY OF PROGRESS

In a recent number of the PAPER TRADE JOURNAL there appeared the story of the centenary which Chicago will celebrate in 1933. The remarkable progress made in organization and construction up to this time indicates that this exposition will undoubtedly be the greatest yet held. Chicago has set about to clean up and to welcome the millions of visitors who will attend. She has actively working on the Century of Progress committee men whose names are known throughout the world of letters, business and science.

The unique feature of the centenial lies in the way it will depict the relation of science to the changes which have come about in our social and economic life. The past century has seen more of these changes than any other one in history and so the theme is exceptionally appropriate at this time.

Through its own committee the paper industry has had an excellent opportunity to ascertain all the facts regarding participation in the exposition. This committee has been active over the past two years and has supplied the American Paper and Pulp Association with necessary data for the mills who may wish to join in the celebration. Thus it has been shown that a cooperative scheme can be worked out whereby as few as twenty companies could put in $5000 apiece and work out an exhibit which would be a credit to the industry and of distinct advertising value to the individual companies. Liberal credit terms have been allowed by the exposition authorities and particularly for the early applicants.

Pulp and paper companies may have hesitated to commit themselves at a time like this but better days will be with us when the exposition is held in 1933. Then we shall regret it keenly if we do not have adequate representation of our important industry. Only immediate and concerted action will bring about this kind of a display; and it seems natural that it can best be correlated and directed through the activities of the American Paper and Pulp Association.

FOREIGN PAPER TRADE

United States exports of paper and paper products during the month of October were valued at $1,756,519, being 25 per cent lower than a year ago, but showing a gain of 4.3 per cent over the preceding month according to the Paper Division of the Department of Commerce. During the ten month period there was a 20 per cent decrease from the same period of 1930.

The following increases are noted in October exports over those of September: Vulcanized fiber sheets, strips, rods and tubes, 126 per cent; wall board of paper or pulp, 75 per cent; box board (paper board and strawboard), 65 per cent; fancy writings, wrapping paper, other paper board, each, 46 per cent; filing folders, index cards and other office forms, 32 per cent; news print, 23 per cent, cash register and adding machine paper, 21 per cent, other writings and boxes and cartons, each 14 per cent; cover paper, 10 per cent. The heaviest decreases compared with the preceding month occurred in the exports of book paper, not coated; greaseproof and waterproof papers, overissue and old newspapers, fiber insulating lath or board; surface coated papers and toilet paper.

Compared with the corresponding month in 1930. the following registered heavy gains: other paper board, vulcanized fiber sheets, strips, rods and tubes, cash register and adding machine paper and overissue and old newspapers, while heavy decreases by a like comparison were noted in book paper, wrapping paper, tissue and crepe paper, boxboard (paper board and strawboard), bristols and bristol board, sheathing and building paper, fiber insulating lath or board, wall board of paper or pulp, blotting paper, fancy writings, other writings, paper hangings (wall paper) paper bags and envelopes.

October exports of paper base stocks amounting to $314,233, represented 2 per cent increase over those of a year ago but a slight decrease from the preceding month. During the ten month period they totaled $3,148,202, or a decrease of 16 per cent from the corresponding period of 1930. Exports of soda pulp which were very low in September registered a gain of 233 per cent in October. Exports of pulpwood were 17 per cent higher and sulphite wood pulp and other wood pulp slightly higher than in October. Rags and other paper stock declined 26 per cent.

October imports of paper and paper products totaled $10,660,058, a slight increase over September, but 20 per cent lower than a year ago. During the first ten months of the year they declined by $15,377,696. October

imports of news print were heavier than in the preceding month but 20 per cent below those of October, 1930. Cigarette paper imports in September were valued at $461,874 which represented an increase of 126 per cent over those of September and a 15 per cent increase over those of a year ago.

Imports of the following items also were considerably higher than in September: Greaseproof and waterproof papers, leatherboard, test and wall board, duplex decalcomania paper, not printed, and paper boxes. Shipments of the following came in in greatly diminished quantities from those of the preceding month; as well as from those of a year ago: Kraft wrapping paper, other wrapping paper, writing and drawing paper, writing paper and envelope combinations, pulp board in rolls.

Imports of paper base stocks, with a valuation of $6,219,372, were lower than in September as well as a year ago. They declined heavily in the ten month period compared with the same period in 1930.

Mead Corp. Renews Contracts

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, December 21, 1931.—It was stated today that the Mead Corporation, of which George H. Mead is president, and which maintains its general offices in the Callahan Building in this city, has just renewed its contractural relations with last year's customers for all of their requirements during the coming year.

This was one of the bright notes in the commercial world here which also included reports of contracts for refrigeration units amounting to $1,000,000, and other business moves, indicating an improved trend.

Mr. Mead has just returned from New York where he arranged for the last of the contract renewals. The contracts cover white paper made in the Corporation's mills in Chillicothe, Ohio, and at Kingsport, Tenn., both of which are now in operation. These are two of the principal mills of the various holdings of the Mead Corporation, which holds interests throughout the United States, principally in the Eastern and Southern section, and in Canada.

The output of the Ohio and Tennessee mills mentioned above amounts approximately to 400 tons daily. Neither the Chillicothe nor the Kingsport plants have been shut down during the present year, and with the new contracts signed, there is every indication that they will continue in operation throughout the year 1932.

Although it cannot be stated at this time how much paper will be needed by the different buyers, representing in most cases, magazine publishers and others, during the coming year as actual requirements may vary from month to month, but it is understood that it will be practically 85 per cent or more of the Corporation's output in these two plants represented in the commitments made for next year.

Receivers to Run Wheelwright Plants

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., December 14, 1931.—The receivers of the Geo. W. Wheelwright Company, Leominster and Hardwick, Mass., have received authority to operate the plants of the company until further order from the court.

The "Little Paper Machine"

BENTON HARBOR, Mich., November 17, 1831.

EDITOR PAPER TRADE JOURNAL:

Thanks, many times indeed for your kind favor of the 12th inst. It is very nice of you to have sent to me the picture of the "little paper machine."

I began about 1875 to struggle to read my father's copy of the Journal and to love the "little paper machine" at the top of page. My father also put together a scrap book beginning it before I was born and it contains many clippings from the Journal that I struggled to read at an early age. They are interesting to me even now.

I have promised this scrap book to the Smithsonian Institute of Washington, D. C. I used to "scrape" that knocker screen at the end of the "little machine"—"scrape" being technical for cleaning the dirt and mess that gathered on top of the screen plates. If the scraping was not done slowly then the Fourdrinier wire would be flooded, thereby causing the paper to break at the couches or presses; which brought forth the anger of the machine tender who was a veteran of the Civil War and used army discipline.

Then I went before the machine tender and turned those brass paper rolls that may be seen above the driers; the machine tender following with the end. If the rolls were not turned very fast then the paper "went slack" and that was unethical, so we might get a kick in the pants from the machine tender. Then I still bear the marks of master paper worker imprinted on some of my fingers by the calenders of the "little machine."

I think we should have an "Ancient Society of the little paper machine"—and that is why we love the memory of the little machine. I have been a globe trotter like many of the brethren—and trotted on both sides of the Atlantic; but for many years I have been an invalid much confined at home so to fill in the time I brought to myself all sorts of things that I could not go after and one of them is art subjects, so that I am a graduate of such institutions as the Federal Schools of Illustration and other similar matters.

Many times I have started to write and tell the story of paper, but conditions always in a state of flux made my style and scheme beyond the present day folk, so I have laid the work aside many times.

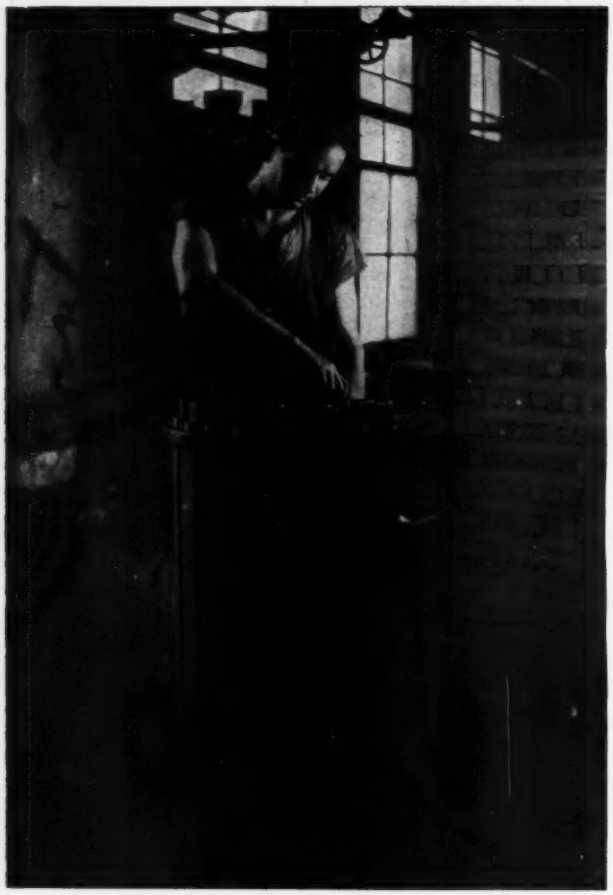
My father's scrap book came into my possession but recently, after very many years in other hands so I am slowly and carefully restoring and repairing it. It has a cut of the "little paper machine" taken from the heading of a very early copy of the PAPER TRADE JOURNAL, but the cut is partially destroyed and portions lacking, but now I can restore this picture from the details supplied by the cut you have so kindly sent me. The early craftsmen paper makers were truly wonderfully clever men of very great self reliance. I have made much paper myself, all kinds, in days agone and know all the angles of the paper craft from "Rozzum Size" up.

The literature on paper is very meagre and uninteresting to the unsophisticated, but I believe it could be made interesting to those that know not of this art. Paper has done so very much for civilization that it should have its just tribute paid by someone who knows.

Again thanking you, I am

Yours very truly,
GEO. H. MARSHALL,
Chemist.

MAKING AND SERVICING EBG



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Liquid Chlorine

Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

Analysis of Bisulphite Liquor (Cooking Acid)*

Tentative Official Standard Method of the Technical Association of the Pulp and Paper Industry

Bisulphite liquor, used in the manufacture of sulphite pulp, consists essentially of a solution of calcium bisulphite, $Ca(HSO_3)_2$, magnesium bisulphite, $Mg(HSO_3)_2$, and free sulphur dioxide, SO_2.

For control tests in the mill, a volumetric analysis is usually sufficient. For a complete analysis, however, gravimetric methods are necessary.

VOLUMETRIC CONTROL ANALYSIS

Preparation of Sample

Into a 100 cc. volumetric flask, containing about 50 cc. of water, shall be pipetted accurately 10 cc. of bisulphite liquor, holding the tip of the pipette just under the surface of the water. The solution shall then be diluted with water to the mark and thoroughly mixed.

Total SO_2

25 cc. of 0.1 N iodine solution shall be pipetted accurately into an Erlenmeyer flask and about 100 cc. of water added. Then 10 cc. of the prepared solution of the sample shall be pipetted into the iodine solution. The excess of iodine shall then be titrated with 0.1 N thiosulphate solution, adding a little starch indicator solution near the end of the titration if desired. If starch solution is added, the end point shall be the disappearance of the blue color. If no starch is used, the end point shall be the change from pale yellow to colorless. The amount of 0.1 N thiosulphate shall be subtracted from the original amount of 0.1 N iodine solution (25 cc.) and the difference calculated to grams of SO_2 per 100 cc. of the original sample.

Calculation: 1 cc. 0.1 N iodine = 0.0032 gram SO_2.

Free SO_2

10 cc. of the prepared solution of the sample shall be pipetted into an Erlenmeyer flask, diluted to about 100 cc. with water and titrated with 0.1 N NaOH solution, using phenolphthalein solution as an indicator and continuing the titration until a pink color is formed which is permanent for 1 minute. The titration shall be calculated to grams of SO_2 per 100 cc. of the original sample.

Calculation: 1 cc. 0.1 N NaOH = 0.0032 gram SO_2.

Combined SO_2

The difference between the total SO_2 and the free SO_2, both expressed in grams per 100 cc., shall be reported as the combined SO_2.

Note: The free SO_2 is the actual free SO_2 plus half of the SO_2 in the bisulphites of calcium and magnesium and is more properly called the "available SO_2" as it indicates the SO_2 in excess of the amount necessary to form monosulphites. The combined SO_2 as above calculated represents the SO_2 combined as monosulphites, or in other words is half of the SO_2 in the bisulphites of calcium and magnesium.

COMPLETE GRAVIMETRIC ANALYSIS

Ordinarily results shall be reported in grams per 100 cc. of the bisulphite liquor. If actual percentages by weight are desired, the figures thus obtained shall be divided by the specific gravity of the original solution.

Silica

25 cc. of the original liquor shall be pipetted into a small beaker or porcelain dish and, after adding 5 cc. of conc. HCl, the mixture shall be evaporated to dryness on the steam bath and dehydrated for 30 minutes at about 130 deg. C. To the residue shall be added 5 cc. of conc. HCl and then 100 cc. of hot water. The solution shall be boiled and filtered and the residue on the paper after washing thoroughly with hot water shall be ignited, first over a Bunsen burner and finally over a blast lamp or Meker burner, then cooled and weighed as SiO_2.

Iron Oxide and Alumina

The filtrate from the silica determination shall be diluted to about 300 cc., then 10 cc. of 10 per cent NH_4Cl solution added, the mixture brought to a boil and a slight excess of NH_4OH added. After boiling until the odor of NH_3 is nearly but not quite gone, the solution shall be filtered, the residue washed thoroughly with hot water, ignited strongly, cooled and weighed as $Al_2O_3 + Fe_2O_3$.

Calcium Oxide

The filtrate from the iron oxide and alumina determination shall be heated to boiling and to it shall be added 20 cc. of 10 per cent $(NH_4)_2C_2O_4$ solution. After allowing the precipitate to settle, the solution shall be filtered, the residue washed thoroughly with hot water and then ignited to constant weight over a Meker burner or blast lamp and weighed as CaO.

Note: For very accurate work the original precipitate of CaC_2O_4 shall be dissolved through the filter paper with a slight excess of dil. HCl and the filter paper washed with hot water. The calcium in the filtrate shall then be reprecipitated by boiling with an excess of NH_4OH and a few drops of $NH_4C_2O_4$ solution. The reprecipitated CaC_2O_4 shall then be allowed to settle, filtered, washed and ignited.

In the case of a double precipitation the second filtrate shall be rapidly evaporated to about 25 cc. and added to the first.

* This method has been approved by the Non-Fibrous Materials Testing Committee of the Technical Association of the Pulp and Paper Industry. Send criticisms and suggestions to R. C. Griffin, chairman, 30 Charles River Road, Cambridge, Mass.

Magnesium Oxide

The filtrate (or combined filtrates) from the CaO determination shall be evaporated to about 100 cc. and a slight excess of HCl added, followed by 25 cc. of 10 per cent $NaNH_4HPO_4$ solution. The solution shall be cooled and 25 cc. of conc. NH_4OH added slowly from a burette or dropper with constant stirring. The precipitate shall be allowed to settle in a cold place for at least 2 hours (preferably over night), then filtered on a Gooch crucible containing an asbestos mat which has previously been ignited, cooled and weighed. The precipitate shall be washed thoroughly with water containing about 2.5 per cent of NH_3 (1 part of conc. NH_4OH to 9 parts of water). The precipitate shall be ignited over a Meker burner (not strong enough to soften or melt the pyrophosphate), cooled in a desiccator and weighed as $Mg_2P_2O_7$. This shall be calculated to MgO.

Calculation: $Mg_2P_2O_7 \times 0.3621 = MgO$.

Alternative Method for Calcium and Magnesium Oxides

25 cc. of the original liquor shall be pipetted into a platinum dish, about 1 cc. of conc. H_2SO_4 added, the mixture evaporated to dryness, carefully ignited, cooled and weighed as the mixed sulfates $CaSO_4 + MgSO_4$. The residue shall be dissolved in 25 cc. of dil. HCl, the solution washed into a beaker, made alkaline with NH_4OH, heated to boiling and sufficient $(NH_4)_2C_2O_4$ solution added to precipitate the lime completely. The boiling shall be continued for 2 minutes and the precipitated CaC_2O_4 allowed to settle for at least ½ hour. The precipitate shall be thoroughly washed with hot water, ignited to constant weight over a blast lamp and weighed as CaO. This shall be calculated to $CaSO_4$, the weight deducted from that of the mixed sulphates and the remaining $MgSO_4$ calculated to MgO.

Calculations: $CaO \times 2.428 = CaSO_4$.
$MgSO_4 \times 0.3349 = MgO$.

Sulphur Trioxide

To 10 cc. of the original sample shall be added 5 cc. of conc. HCl and the solution evaporated nearly to dryness to remove SO_3. The solution shall then be diluted to about 100 cc. and 2 cc. of HCl added, followed by 10 cc. of 10 per cent $BaCl_2$ solution added drop by drop while boiling. The precipitate shall be allowed to settle, filtered, washed thoroughly with hot water, ignited, cooled and weighed as $BaSO_4$. This weight shall be calculated to SO_3.

Calculation: $BaSO_4 \times 0.3430 = SO_3$.

Total SO_3

The total SO_3 shall be determined by tirating with 0.1 N iodine and thiosulphate as described in the volumetric method.

Calculation of Results

The SO_3 shall be calculated to $CaSO_4$ and the remaining CaO to $Ca(HSO_3)_2$. The MgO shall be calculated to $Mg(HSO_3)_2$. The excess of SO_2 beyond that required for the bisulphates of Ca and Mg shall be expressed as free SO_2.

Calculations: $SO_3 \times 1.700 = CaSO_4$.
$CaO \times 3.606 = Ca(HSO_3)_2$.
$MgO \times 4.625 = Mg(HSO_3)_2$.
$Ca(HSO_3)_2 \times 0.6336 = SO_2$.
$Mg(HSO_3)_2 \times 0.6872 = SO_2$.

TAPPI Notes

George C. McNaughton, formerly superintendent of the Mead Paperboard Company, Chillicothe, Ohio, is now associated with Dr. Charles H. Herty in his experimental pulp and paper mill project at Savannah, Ga.

Norman Clark, recently superintendent of the coating mill of the Standard Paper Manufacturing Company, Richmond, Va., is now with the Gibson Playing Card Company, Long Island City, New York.

C. W. Morden will read a paper discussing the Morden stock .aaker at the TAPPI annual meeting.

All annual meeting paper manuscripts must be in the TAPPI secretary's office, 370 Lexington avenue, New York, by January 9, 1932.

L. M. Yoerg and R. W. Pattison of the American Writing Paper Company will present an annual meeting paper entitled, "Wires and Felts." This will be a contribution of the Paper Manufacture Committee.

It was previously announced that S. D. Wells had left the Nekoosa-Edwards Paper Company. The statement should have read that Mr. Wells is working temporarily in the mills of the Combined Locks Paper Company. He is, however, still connected with the Nekoosa-Edwards Paper Company.

A number of companies have increased their research departments during the past year. Now is certainly the time to study developments and to get out of the overproduction rut. At least three companies have technically trained men out in the market studying their customers' needs and finding new products that they can make with profit. They are finding plenty of leads that will keep their companies out of red ink difficulties. The companies with high grade technical organizations will be the first and probably the only ones to emerge out of the present situation with a worthwhile future before them. Most of these companies are making profits today even though they are running at reduced capacity.

The high rate at which members of TAPPI are paying their 1932 dues is very heartening. Loyalty and support such as has been shown this month can not fail to stimulate much worthwhile activity during the coming year. The Association tries to keep a few years ahead of the industry at all times, and since the needs of the next several years are clearly defined, the association will direct its efforts along these lines.

Specifications are a joy to the buyer and the bugaboo to the seller, but if they are intelligently arrived at they serve a useful purpose. Before they can be prepared, however, standards of measurements must be adopted by the Technical Association. At no time in its history has the association been more active and better organized than it is at present, to build this foundation. By the end of next year tentative standards will have been adopted for measuring the principle of physical and chemical properties of paper, pulp and the non-fibrous raw materials used in the industry. As a result of these efforts the association will soon be able to issue a manual of testing methods, specifications and recommended practices. The manuals, when issued, will be available only to members of the association.

The Engineering Division of the Technical Association is working hard to assure a good annual meeting program. Plans are under way to enable TAPPI engineers to visit one or two interesting steam power plants on Monday, February 15. Anyone interested in such visits should write Mr. M. H. Teaze, chairman of the Heat and Power Committee of the Technical Association of the Pulp and Paper Industry, 370 Lexington avenue, New York.

Any superintendent now unemployed should register with the secretary of the Technical Association, 370 Lexington ave., New York.

Wrinkles in Clock Faces

The Bureau of Standards was recently requested by a clock manufacturer to assist in curing wrinkles in paper dials used as clock faces. Unlike the wrinkles of human faces, these were not due to old age. Through comparative tests of the wrinkled dials with those which did not wrinkle, the trouble was traced to the greater expansion of the former on absorbing moisture from the atmosphere. Paper has the property of expanding appreciably with increase of moisture content, due to swelling of the fibers, and the dials which wrinkled were found to expand 50 per cent more than those which remained unwrinkled, when both were subjected to a normal increase in atmospheric humidity. The dials fitted quite closely in a circular metal recess, and the greater expansion of the one paper forced the edge of the dials against the metal housing sufficiently to cause the wrinkling.

Standard Method Of Preparing Test Sheets (To Determine Initial Strength Of Paper Pulp)

Compilation of Comments and Criticisms As Received During Summer Months of 1931 by the Office of Secretary of The Technical Association of the Pulp and Paper Industry

By Donald E. Cable[1]

Introduction

A method of testing paper pulp for "initial strength" or "felting strength" was presented early in 1928 as a tentative standard method to both the Canadian Technical Section and to the Technical Association of the Pulp and Paper Industry under the sulphite committee chairmanship of G. P. Genberg. In view of the fact that this method has served for longer than the required minimum period of one year as a tentative standard method it was considered advisable by our president and secretary to submit this method to a formal vote of the members for adoption or rejection as a fully fledged standard method.

In view of the numerous and important criticisms which have been cited against the procedure on the ballot responses the executive committee at its meeting at Kalamazoo, Mich., in September decided to disapprove of the method in its present form. However, to serve as a guide to present or future pulp testing committees many of the more important comments, criticisms and objections to various phases of the suggested procedure are given below opposite identification letters representing the various members whose comments are given verbatim.

The original proposed method as published in the February 23, 1928, issue of PAPER TRADE JOURNAL and in the March 29th and April 5th, 1928, issues of Pulp and Paper Magazine of Canada, also in Tech. Assoc. Papers 11, no. 1:47-56 (1928), is well illustrated with dimensional drawings of the various items of equipment. A review of the comments submitted by members voting on the adoption of this method follow:

Standard Method of Preparing Test Sheets

Comments as to title:

Q. The title is inaccurate as (1) the method deals primarily with the determination of strength of fibers when formed into sheets, therefore the preparation of the sheets is merely a procedure detail, and (2) the method applies only to wood fibers. Suggest: "Method for determination of Sheet Strength of Unbeaten Wood Fibers."

T. Title does not indicate that unbeaten pulp only is being considered.

Z. Title of the procedure should include the words, "To Determine Initial Strength of Paper Pulp" in the same size type as "Standard Method of Preparing Test Sheets."

1. Scope

The object of the method is to serve as a contribution towards the development of an international standard method to determine strength of paper pulp.

The method is jointly worked out by the committee on physical standards of the Canadian Technical Section and the sulphite committee of the Technical Association of the Pulp and Paper Industry and is the result of recent developments on the American continent in the field of pulp testing.

The principal difficulties which make the ordinarily used methods more or less unreliable are the production of uniform test sheets and the preparation of the pulp previous to forming it into sheets. After a thorough investigation of the factors influencing the uniformity of the test sheets the following method has been formulated which is believed, if strictly followed, to produce uniform sheets for testing purposes from unbeaten pulp regardless of the particular character of the pulp being tested.

Comment from Q:

First three paragraphs should be transferred to appendix as they are not a part of the method but added information.

The method consists briefly of disintegrating the pulp with only very slight hydration, then forming the sheet on a sheet machine with such a volume of water that all samples require the same length of time to drain. The sheets are next pressed in an hydraulic press at a definite pressure to a certain moisture content. After pressing, the sheets are dried in an atmosphere of standard humidity and temperature conditions so that the rate of drying the sheets is as nearly uniform as possible. The sheets are then tested for strength properties under the same atmospheric conditions. The tests to be made on the sheets are not specified but any official tests adopted as standard for paper can be applied.

2. Sampling

The pulp may be available for test in the form of samples or shipments. If a sample presented for testing is not submitted in an air tight container or provision is not made to preserve a certain moisture content in the pulp, the sample shall be seasoned to standard weight at 65 per cent relative humidity and 70 deg. F. temperature.

Shipments shall be sampled according to the official method, adopted by the Joint Committee of the American Pulp and Paper Association, the Association of American Wood Pulp Importers and the Technical Association of the Pulp and Paper Industry for sampling pulp for determination of moisture content. There should be strict adherence to these rules and the same care of the samples before they are ready for disintegration must be observed as in the case of samples for moisture determination. (Appendix A.)

M. My first objection is to the moisture test. This can be simplified and obtain equally accurate results.

A duplicate set of samples taken for moisture when placed in an air tight can to preserve the moisture content, serves well for the strength test.

3. Apparatus

(a) Disintegrator

The construction of the disintegrating apparatus to be employed must embody the following essential features:

(1) Drive: Propeller shaft direct driven from one-quarter horsepower motor, 1800 r.p.m. Flexible coupling is recommended.

T. Under disintegrator why is a one-quarter horsepower motor specified? Isn't the speed the only important thing?

V. A speed of 1725 r.p.m. is standard for American motors.

(2) Propeller Blades. Four blades, size 2⅞ x 1⅜ x 3/16 inches, made preferably of phosphor bronze, with arrangement and assembly as follows: The blades are fitted into slightly dove-tailed grooves one quarter inch deep, cut diagonally across

[1] Chairman of the pulp testing committee, of the Technical Association of the Pulp and Paper Industry, 370 Lexington Ave., New York, N. Y.

the four faces of a ⅜-inch square shank, length 2½ inches, made solid with the end of the propeller shaft. The blades are set in pairs diagonally opposed to each other, at 60 degrees from horizontal, and the ends are cut so as to be parallel, when in operation, with the base of the container. The clearance between the bottom of the blades and container should be within ½ to 1 inch.

(3) Container, made of either glass or metal, minimum capacity 3 liters but having a 6 inch square cross sectional area with corners rounded on ½ to 1 inch radius. The vertical sides of the container should be rounded at the top to form a smooth shoulder, or such design that "dead" spots are eliminated.

Remarks.

A very efficient disintegrator has been developed by the Canadian Forest Products Laboratories in Montreal. Certain improvements might with profit be incorporated on the existing apparatus but they effect only ease of manipulation. Further details of this apparatus may be had upon request.

B. The Forest Products Laboratories at Montreal has data that the Canadian disintegrator introduces more hydration than the British disintegrator. There is considerable hydration introduced by the latter so the statement that there is "very slight hydration" does not appear warranted. Experiments at the Forest Products Laboratories indicate the British disintegrator to be much superior to the one recommended.

F. Only a very slight disintegration treatment is specified. It is absolutely essential to be very precise in the specifications for the disintegrator. The specifications for the propeller blades does not include any mention of radii of edges and the container must not be so loosely specified.

P. The method involves use of equipment having specifications different from that used in strength testing, i.e. requires use of a disintegrator entirely different from that used in our new tentative beater test.

Q. There are various types of disintegrating apparatus which give equally good results. I suggest that details given be recommended only, and a statement incorporated that any type of disintegrator which will give equally good results in respect to minimum hydration, and separation of fibers, is permissible.

R. The statement is made that the apparatus must embody certain features. It does not seem that such a condition is absolutely necessary, if so, then one company should manufacture the disintegrator, or the association should furnish a certificate that apparatus made by different companies conform to the standards required.

V. Better do away with sharp cutting edges of blades.

Z. The slotted brass disk type of disintegrator developed by the Research Department of the Oxford Paper Co. (illustrated on page 289 of Technical Assoc. Papers, XIV, May, 1931) has been found by Moore (Paper Trade Jour. 87, no. 21; 59, 60—Nov. 22, 1928) to give fully as satisfactory results as the dovetailed, four blade type of disintegrator recommended earlier by the Canadian Forest Products Laboratories. The former would seem to be much simpler to make than the latter.

(b) Screening Apparatus

Any type of screening apparatus can be used provided it is equipped with a screen plate having 0.012 inch slots. A suitable screening apparatus is described in Appendix B.

F. The use of a screen for a pulp test is decidedly very unwise; obviously in the case of a shipment of pulp including several different cooks, the undercooked pulp will be screened out and lead to markedly erroneous results based substantially on only the well cooked portion.

(c) Sheet Machine

The apparatus proposed for making the test sheets is a sheet machine made with a few minor alterations from the patterns of W. G. Wilen (Wayagamack Pulp and Paper Co.) and described by him in the Pulp and Paper Magazine of Canada, January 20, 1921. It consists essentially of two brass castings, the adjoining faces of which are machined to a water-tight fit. To the interior of the top casting is soldered a sheet brass box, the interior dimensions of which are 8¼ x 8¼ x 8 inches with both top and bottom open, the whole forming the deckle box of the apparatus. The lower casting is fitted with a water outlet (7) to which is connected a quick opening gate valve (8), and a discharge pipe. The interior of the casting is slotted to take the screen plate (4) which is made up of a one quarter inch, accurately planed brass plate with ⅜ inch holes drilled and countersunk.

O. The sheet machine should have a water leg on it.

Q. A larger sheet machine should be permitted as Bureau of Standards data show that a machine 10 x 12 inches makes uniform sheets, and produces trimmed sheets 8 x 10½ inches which are preferable for testing. Several concerns are using this size.

The word "proposed" in first line should be omitted, and this line transferred to the appendix.

Speed of drainage of water from machine is a critical factor and should be specified. Description should be given of satisfactory means of obtaining the required drainage rate. A steam injector valve is very satisfactory.

V. A rectangular type of grid supporting plate would seem to be an advantage over one with circular perforations since there is much less dead metal space to obstruct the downward flow of water from the screen surface.

This plate is covered, first by a 14-mesh wire screen and then by a 60-mesh screen soldered and sewn on so that it lies perfectly flat. The screen plate in this apparatus is easily removable for cleaning and repair, this being an advantage over the original design in which the screen plate was soldered directly to the casting. The deckle box is fitted with a lever bar (6) which is hinged to the fulcrum bar (5) of the chamber box casting, thus providing an easy means for removing the deckle box in order to couch the sheet off the wire. A stop (10) is used to hold the deckle box in the open position and a handle (2) is used to swing the deckle box open.

To facilitate cleaning of the screen wire, a one-half inch water connection with valve is tapped in the base of the sheet machine. The desired head of water required in the chamber, preparatory to pouring in the stock, can be thus easily controlled.

N. This paragraph specifies that the water to be used for filling the sheet machine be piped in the base under the wire mold. It has been the experience of this laboratory that while this is a very convenient method of filling the machine it causes a collection of dirt on the under side of the wire between the wire and the supporting plate. This dirt may be due to small amounts of fiber in the water and to slime or scale. As it collects in very small particles it cuts down the drainage in certain sections of the wire and gives a non-uniform sheet. We have been unable to make a thin uniform sheet unless the water was added in the deckle box of the sheet mold rather than under the wire. It is not easy to remove this dirt that collects on the under side of the wire since it lodges between the supporting plate and the wire itself.

A small hook fits into a recess located in the supporting frame and permits easy withdrawal of the screen plate when desired.

A. The type of strength apparatus should be more definitely laid down as the description is not adequate in my opinion.

B. Our opinion is that the Wilen-Date machine is unsatisfactory and that both the British standard machine and the Valley Iron Works machine are much better.

G. My reasons for disapproval are that its provisions should include the very efficient sheet forming machine developed lately by the Technical Section of the Papermakers' Association of Great Britain and Ireland which can be used simultaneously for freeness test.

M. I believe that a much simpler sheet making machine is

available. I prefer the cylindrical with a removable sheet mold. This makes it much easier to couch the sheets.

R. What are the objections to making a sheet 10 x 12 inches if it is uniform. I believe that the test results given in my papers for our machine (one used at the Bureau of Standards) show that uniform test sheets can be obtained on a large machine. The dimensions you give will not permit the use of a larger or smaller machine than 8¼ x 8¼ inches.

S. The type of sheet machine specified is troublesome to maintain.

V. This hook method for removing the screen plate is a fair expedient, but the pressing of a lever to remove it is better.

W. Larger sheets are desirable.

Z. I consider it a mistake to specify the Wilen sheet mold as the one and only kind to be regarded as standard when similar sheet molds are being made by Williams Apparatus Company, Valley Iron Works and others. Improvements have been made in commercially available sheet molds within the last three years which lead me to believe that other makes are as good or better for this work than the Wilen mold. Personally I do not like the shallow chamber below the screen and am of the opinion that a 1½ inch discharge pipe would be better for some types of pulp than the 1 inch pipe.

(d) Agitator

The agitator consists of a copper or brass plate 7⅞ x 7⅞ inches and ⅛ inch thick. Half inch holes are bored over the total area of the plate a quarter of an inch apart. To the center of the plate is attached perpendicularly a wooden handle 10 inches long and 1 inch in diameter. To each corner of the plate are fastened small pieces of rubber to prevent any damage to the wire.

M. I believe that the agitator should be run by a motor and kept moving until the water has drained away.

Q. With quick drainage an agitator is not necessary.

R. I do not believe one is necessary. We haven't found it so.

(e) Couch

The couch consists of a wooden rocker 8⅝ x 10 inches with a segmental cross-section. The chord of the segment is 10 inches and the height of the arc about 1⅝ inches.

B. The British standard machine method of couching is much more easily controlled and is preferred.

F. In their last report on pulp testing the Canadian physical testing committee definitely states that a roll is superior to a wooden rocker which it unquestionably is. Are we not to take advantage of superior methods?

Q. The Bureau of Standards method of couching is preferable as no personal factor is introduced.

R. What are the objections of couching off the sheet in accordance with the Bureau of Standards method? I would think that by the use of a modern rocker a varying pressure might be applied to the wet sheet on the wire.

V. See Merle Shaw suction method or Williams hydraulic press methods.

(f) Hydraulic Press

Any type of hydraulic press can be used as long as its capacity is such that 200 pounds per square inch sheet area can be obtained on sheets 8 x 8 inches in size.

B. The pressing methods suggested are probably better than those for the British standard method.

(g) Humidity Control

Any system of humidity control can be used providing that it comply with the humidity and temperature conditions adopted as standard by the industry. These conditions are 65 per cent relative humidity and 70 deg. F. temperature. A tolerance of plus or minus two per cent in relative humidity and plus 9 degrees F. in temperature is permissible.

T. I do not approve of 65 per cent relative humidity as a standard condition for seasoning and testing.

Means shall be provided for so circulating the air in the humidity chamber that its humidity and temperature will be uniformly maintained in all parts. This is done by locating circulating fans at proper places in the chamber.

The relative humidity of the chamber shall be determined according to the specifications adopted as official (Appendix F).

The humidity control described by Dr. H. T. Ruff in the PAPER TRADE JOURNAL, August 25, 1927, is recommended as an inexpensive and reliable system. (Appendix E.)

Q. The last paragraph belongs in appendix.

4. Test Specimen

From all the samples of the pulp collected to be tested, portions of the same size shall be extracted by a convenient method so that a final sample of a weight equivalent to about 100 grams air dry pulp is obtained. The exact weight of the specimen to be disintegrated does not have to be determined. Immediately after cutting, the final sample shall be disintegrated. If this is inconvenient the sample shall be replaced in an air tight can or be saturated with water to prevent drying.

5. Procedure

(a) Disintegration.

The test specimen shall be disintegrated in 3 liters of water for exactly 5 minutes. The disintegrated stock shall then be screened over a 0.012 inch cut screen plate to separate any unbroken fiber bundles. The screened stock is collected and thickened in a suitable container equipped with drainage bottom covered with a 60-mesh wire.

B. Method okey if Canadian disintegrator is used.

F. The use of a 60-mesh screen for thickening the screened stock would unquestionably result in a loss of fine fibers which should be included in the test.

L. Screenings should not be rejected but added to the balance of the pulp.

N. This paragraph specifies that the test specimen shall be disintegrated for exactly five minutes. I believe that it is well to set a definite time of stirring for disintegration but this will not accommodate pulps that are especially difficult to disintegrate. This paragraph also states that the screened stock shall be collected and thickened in a drainer covered with a 60-mesh wire. It is a well established fact that considerable amounts of most pulps even long fibered pulps such as sulphite will pass through a wire screen as fine as 60-mesh. If the drainer was filled in such a way that the first amount of pulp acted as a filter pad for the finer material in the remaining pulp it would not be serious. I would suggest, however, that this wire be changed to a 100-mesh rather than a 60-mesh.

O. The disintegration should be for a definite number of revolutions, such that no screening is necessary.

T. Disintegration is not sufficiently described.

W. I believe that no screenings should be rejected. They should be disintegrated separately and added to the balance of the pulp.

(b) Preparation of Disintegrated Pulp

The screened pulp shall be diluted to about 0.5 per cent consistency in a suitable container. The exact consistency shall be determined in each case as follows:

A carefully measured volume of the diluted disintegrated stock equivalent to about 5 grams of oven dry fiber will be poured on to a filter paper on a Buechner funnel, the tare weight of the filter paper having previously been determined. Suction will then be applied to the funnel, very gradually at first to prevent a burst of the filter paper, but increasing to a maximum once the pat of stock has formed on the filter.

S. I prefer a 200-mesh wire to a filter paper for the consistency test.

The pat of pulp, together with the filter paper and any adhering pulp around the sides of the funnel, is carefully removed

and pressed between mercerized cotton with a hot iron, the whole being placed over several sheets of blotting paper. The pressing will be continued until the pat is practically oven dry, care being taken to avoid scorching. Final drying will be accomplished in a drying oven for fifteen minutes at 100 deg. C. The oven dry pat will then be removed from the oven, placed in an accurately tared weighing bottle, cooled and weighed.

The consistency shall be calculated from the difference in weights of the pulp before and after drying, the weight of the previously tared filter paper being deducted from the dry weight of the pat.

If complete separation between the pulp pat and filter paper can be made after removal from the Buechner funnel, there is no objection to weighing the pulp only.

(c) Area of Test Sheets

The area of the test sheets made on the specified sheet machine will after drying be 8 x 8 inches or slightly larger, depending on the freeness of the pulp tested.

(d) Weight of Test Sheets

The test sheets shall have a weight equivalent to 125 pounds per ream 500 sheets 25 x 40 inches at 65 per cent relative humidity and 70 degrees F. temperature and must not vary in weight more than plus or minus 3 pounds on that basis.

A. It would seem to me that a 125 pound sheet is too heavy and that the weight tolerance (plus or minus 3 pounds or 2½ per cent) is not sufficient. In this connection is the ream (500 sheets, 25 x 40 inches) the most widely used and therefore the most applicable for specifying the weight.

B. I strongly disapprove of the heavy basis weight recommended. The British standard method sheet at 42.67 pounds (25 x 40 — 500 b.d.) is quite satisfactory. It is high enough to give a reasonable range of variation in test results and low enough to approach operating basis weights.

F. The average basis weight of everyday paper runs about half the substance specified. With short fibered pulp this double thickness results in an undue relative increase in strength.

H. The weight of the sheet is too heavy to compare with the commercial sheet.

L. I consider 125 pounds basis weight as being too high. A 70 to 80 pounds basis would be better.

N. This paragraph states that the test sheets equivalent to 125 pounds 500 — 25 x 40 ream are to be used. Since this has been a standard practice of pulp testing for some time I do not know that it is well to suggest a change. However, in our work we have found it much easier to measure differences in pulp qualities on lighter sheets and on sheets which correspond more nearly in basis weight to finished paper. At the present time we are using 60 pound sheets, 500 — 25 x 38. Such properties as opacity, compressibility, density and stiffness are much more accurately determined on the lighter weight sheets.

O. A basis weight of 125 pounds per ream is too high. The relation between bursting strength and basis weight is a straight line function up to 80 or 90 pounds. The weight selected should not be above this. A 60 pounds basis weight is good.

Q. Bureau of Standards data show that the strength of sheets bears no constant ratio to their weight and for this reason the Bureau recommends a weight of 60 pounds as this is near the average weight of paper, and there is no difficulty in making uniform sheets of this weight. A heavier weight should be used only when the pulp is to be used for boards.

R. I was under the impression that a 125 sheet (25 x 40 — 500) was considered too heavy if any tests other than weight and bursting strength were to be made. From our experience it seems that lighter weight sheets gives test curves more nearly like the finished paper.

S. Tests on 125 pound sheets bear no relation to mill operation—for kraft.

W. A 125 pounds basis weight is too heavy. A 70 to 80 pound basis weight is believed to be better.

(e) Sheet Making

Cover the screen of the sheet machine with clear water to a depth of four inches. Pour in the volume of diluted stock corresponding to the quantity of fibers required to make a sheet of the specified weight and fill the deckle box with clear water to such a height that it will require 12 to 14 seconds from the time the discharge valve is opened until the free water has left the sheet completely. The temperature of the water should be kept as closely as possible to 70 deg. F.

B. The idea of varying the consistency in the sheet machine so as to give a uniform drainage time does not appear desirable. My objections are: (a) the drainage rate is a characteristic property of any furnish and drainage under standard suction (as in the British standard method) should give inherently more correct quality results. (b) there are bound to be formation difficulties; if it is claimed that these are not introduced with the Wilen-Date machine it is because the high basis weight and natural poor formation render them unnoticeable. Generally speaking and within proper limits the more dilute the suspension the better the formation. Considering extreme cases, drainage for short hydrated stock simply could not be effected in 12 to 14 seconds while an unbeaten sulphite would undergo considerable "settling" in the machine with this drainage time resulting in a weak sheet and poor formation. It is admitted, of course, that uniform drainage time approaches machine practice where machine speed is varied to allow for freeness variations, but the scheme does not appear feasible for making test sheets.

F. The time specified 12 to 14 seconds is enough to induce clotting of the pulp. That this is an optimum time is not well proven in view of later data published since the experiments were made on which this condition is based.

The sheet shall be made as follows: Mix the suspension of fibers thoroughly by moving slowly the specified agitator four times up and down into the suspension. No time must be allowed for settling, the gate valve shall be opened immediately on withdrawing the agitator from the fiber suspension. When the water has drained from the sheet completely lift up the deckle box and cover the sheet with a piece of damp felt. Couch the sheet using the wooden rocker and place the sheet evenly on top of the felt covering the previously made sheet. Galvanized iron plates shall next be placed on top and bottom of the stack of test sheets and felts.

E. Couching is not under definite pressure—there can be much error caused here.

V. Monel metal or stainless steel plates are much better than galvanized iron ones.

If bursting and tearing strength are the only properties desired, four test sheets are sufficient. If additional tests are wanted a sufficient number of test sheets shall be made so that a sufficient number of determinations can be made to insure an accurate average of each strength property desired.

(f) Pressing

The sheets shall then be pressed between felts for about 30 seconds at approximately 40 pounds per square inch sheet area to remove excess water and make the sheets easily handled.

The sheets shall then be pressed between dry, cool blotters to a dryness of about 80 per cent air dry as follows:

First pressing: Eight blotters shall be used on each side of every test sheet. The pressure shall be raised to 200 pounds per square inch sheet area, and allowed to remain for 5 minutes exactly.

Second pressing: The test sheets shall then be replaced on fresh blotters four on each side of every test sheet. The pressure shall again be raised to 200 pounds per square inch sheet area and allowed to remain for 2 minutes.

F. The pressure, 200 pounds per square inch specified has been shown to be not equivalent to machine conditions. (See Strachan, Proc. Tech. Sec. P. M. A. 1926 Vol. VI. 2). Further-

more sheets made by this method are relatively hard and tinny and not akin to machine made sheets. Adequate reasons should be forthcoming to justify the conditions proposed in the face to existing evidence. Similarly too many blotters are used, resulting in the sheets being dried under pressure. This will result in fuzzy pulps, giving sheets of excessive strengths.

O. Using blotters will cause trouble when a procedure for beaten pulp is formulated. The pulp will stick to the blotters. Better not use them at all.

Q. The Bureau of Standards has shown the use of felts throughout the pressing is preferable in some respects to using blotters.

Use blotters which preferably have been cut 8½ x 8½ inches to facilitate the even stacking of the test sheets and blotters. This is important in order to get an even and similar pressure on each test sheet. Grade and basis weight of blotters are of no large consequence.

A. The method of pressing seems unduly dependent on blotters but possibly this is necessary for formation of proper sheets. I say this because it is said that the grade and basis weight of the blotters are of practically no consequence and yet the number of blotters is definitely specified. Suppose one man uses a blotter twice as heavy as another then is it going to be necessary for him to use the same number? Moreover this procedure requires a large number of blotters to be kept on hand and if one is making many of these test sheets the expense might be considerable.

B. The pressing methods are probably better than those of the British standard method.

M. In pressing I should prefer to eliminate the blotters and remove excess water with compressed air while the sheets are in the press.

R. I believe felts would serve the purpose just as well as blotters and felts can be used over and over again where blotters can not, at least that has been my experience. I prefer felts.

(g) Drying

The pressed sheets shall then be dried in an atmosphere of 65 per cent relative humidity and 70 deg. F. temperature. The sheets shall be suspended in vertical position so that no tension is applied to the sheets during drying. A period of about 10 hours or "over night" should be allowed for proper equilibrium.

A. In regard to drying the sheets it seems to me that air drying over night renders the test a long drawn out one. What is the objection to drying in a smaller drier since this gives a flat sheet and one which can be produced quickly?

E. The drying procedure is not well specified. A wet sheet can not be "suspended" without tension.

F. It is not correct to season the samples to 70 deg. F. and 65 per cent relative humidity. In the case of a moist sulphite pulp, for example, this procedure would involve a substantial reduction in the true burst perhaps 20 per cent and a marked increase in tear. It would be better to specify the sample being tested in the condition in which it is to be used in practice. The drying specified is well for unbeaten pulp, but useless for well beaten pulps.

L. Rapid drying should be provided. Air drying is too slow.

M. Time may be saved by drying sheets on a felt covered steam pipe at a carefully controlled temperature, or in an oven at 103 deg. C. after which they may be humidified in from two to three hours.

S. Drying under tension is better. I prefer an accelerated drying, for example in oven at moderate temperature.

W. More rapid drying is desirable.

(h) Weighing of Tests Sheets

The dried sheets shall then be trimmed to a size 8 x 8 inches and weighed on a scale having a sensitiveness of 10 mg. per 50 grams load. The weight shall be expressed in grams and hundredths of a gram and then calculated in pounds per standard ream as follows:

$$\frac{\text{Total weight of sheets in grams} \times 17.22}{\text{Number of Test Sheets}} = \text{Pounds per ream } (25 \times 40 - 500)$$

(i) Testing of Sheets

The test sheets shall then be tested for the various strength properties desired by means of instruments recognized as standards and according to the official methods adopted for testing paper (Appendix D). At least two properties have to be determined.

6. Report

Results shall be reported in points per 100 pounds basis weight which are obtained by multiplying the results obtained according to the official methods, by 100, and dividing the product with the basis weight of the test sheets.

Bursting strength, tearing strength, folding strength and tensile strength shall be reported in this manner. Per cent stretch shall be reported as in the official method for determining stretch of paper.

B. The question of units and basis weight correction will have to be considered in detail. Except for Mullen present methods of correcting to a per cent points per pound are unsatisfactory unless the basis weights are kept within narrow limits. This is particularly true of fold tests. As a matter of personal preference the writer prefers correcting the testing unit to its value at a given basis weight, i.e. for a news print sheet, basis weight 33 pounds per ream,

$$\text{Mullen 10 pounds to report as } 10 \times \frac{32}{33} = 9.7 \text{ pounds at 32 pounds}$$

$$\text{rather than } \frac{10}{33} \times 100 = 30.6 \text{ per cent points per pound.}$$

The latter method is, however, being generally used for laboratory test sheets at the present time.

E. Reporting folding endurance is not by correct method since fold of a 100 pounds sheet is not 10/12 that of a 120 pound sheet.

Q. There is no known basis for assuming that the results of the tests mentioned bear a direct ratio to the weight of sheets. As mentioned in reference to section 5-(d) the Bureau of Standards found the opposite true. As in paper testing, it is suggested that the strength test results be reported as obtained, together with the average weight of the sheets. If the tests are to be on a 100 pound basis, why not make the sheets of that weight?

Note: Information on the Bureau of Standards data mentioned will be found in the article, "The Preparation of Fiber Test Sheets" by Shaw, Bicking and Snyder. (PAPER TRADE JOURNAL, April 17, 1930.)

General Criticisms of the Entire Method

B. The proposed method takes no cognizance of the recent advances made in the British sheet method. The sheets produced are not as uniform as those produced by the British sheet method.

C. My reasons for disapproval are that after considerable first-hand experience I consider the equipment and methods as officially adopted by the Paper Makers' Association of Great Britain and Ireland to be superior to this method under present consideration, with possibly the rider that sheets be pressed at 200 pounds per square inch.

F. It is highly undesirable to have one method for making sheets for determining the initial strength test and another and separate one for making sheets which have been beaten. The proposed method is quite unsuited for testing well beaten pulp for many reasons, including the method specified for drying.

The Technical Association of the Pulp and Paper Industry is the largest organization of its kind in the paper industry. Such a method as has been specified is utterly unworthy of being called one of its standard methods. The Canadians have proven the later methods developed in Great Britain as more accurate.

A member of the TAPPI pulp testing committee has independently confirmed its findings in a paper read at the last TAPPI meeting in New York City, and appended is a summary showing the results of the correlation of machine made paper on seven different paper machines with the British method, which shows a degree of correlation which the proposed method can not approach. If we are going to have a standard method why not have the best, and direct efforts towards improvements of the best known methods so far published rather than revert to antiquated methods of the past.

The method proposed can not be called a properly standard method. A standard method can only be called such when it is precisely specified and enables other methods to be compared with it, using it as a reference. It would be just too bad if our national standards of weights and measures were as loosely and as indefinitely expressed.

SUMMARY OF GRAND AVERAGES

Including five comparisons of raw stock furnishes and two comparisons of book furnishes

	Sheets made by Calendered machine sheets	British standard method *	Ratio
Basis weight (grams per square meter)..	67.2	65.6	0.97
Filler, per cent	15.9	16.7	1.05
Burst factor	11.7	23.1	1.97
Tear factor	55.0	58.5	1.06
Breaking length (average for both dir.)..	3020	3662	1.21
Stretch, per cent (aver. for both dir.)....	2.4	2.7	1.12
Bulk factor (apparent sp. gr.)	.760	.720	0.95
Opacity	90.2	90.3	1.00

* Except that substance of the laboratory sheets was made to be approximately equivalent to the paper being made on the paper machine.

I. I suggest complete agreement of U. S., Canadian, and British technical bodies before adopting a standard method. Provision should also be made for standard manufacture of parts.

K. The method follows the general lines of our own Pulp Evaluation Committee's report (Interim) on standard method for estimating unbeaten strength, but apparatus is different in size and construction. I think it would have been advantageous had sufficient collaboration between our respective associations been possible to have adopted standard apparatus common to both, so that results would have been directly comparable.

M. This method in my estimation takes more time and effort than is necessary.

S. Initial strength has no value for kraft.

U. It is too slow and cumbersome for ordinary routine operations.

Pulp Testing Committee Meeting Program

The Pulp Testing Committee of the Technical Association of the Pulp and Paper Industry has announced its tentative annual meeting program to be held at the Pennsylvania Hotel in New York City on February 15 to 18, 1932. The following papers will be presented:

"A Study of the Effect of Potassium Permanganate on Cellulose and Pulp in its Relation to Bleachability Tests," by H. K. Benson, V. Sivertz and W. Grant of University of Washington.

"Determination of Methoxy Content of Pulp," by Paul S. Billington, Forest Products Laboratory.

"Cold Water Solubility of Pulp," by Paul S. Billington.

"Hot Water Solubility of Pulp," by Paul S. Billington.

"International Standard Procedure for Determining Initial Strength of Pulp," by James d'A. Clark of the Mead Corporation.

"Determination of Copper Number of Pulp," by N. L. Nourse of Brown Company.

"Determination of Cuprammonium Hydroxide Viscosity of Pulp," by M. D. Reuben of York Haven Paper Company.

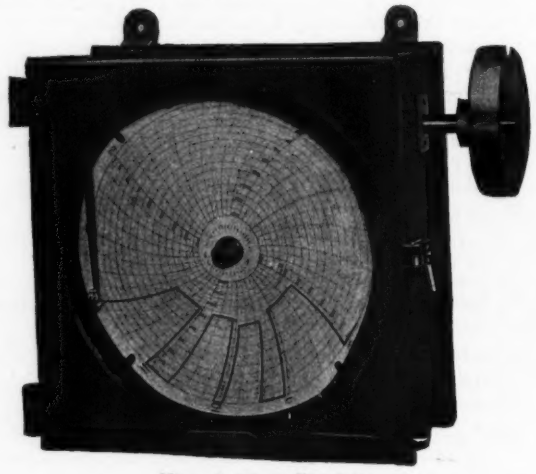
"Rapid Determination of Moisture Content of Pulp," by M. A. Youtz of the Northern Paper Mills.

"Progress Report Regarding the Variable Pulp Consistency in the Pebble Mill Strength Test of Pulp," by F. C. Peterson of the New York State College of Forestry.

Amthor Operation Recorder

With the new Amthor operation recorder, it is possible to really trace and check the basic causes for production losses. On an 8 inch round chart it automatically records and supplies a continuous visual picture of the entire operation of the machine on which it is installed. The chart is graduated to record any specific unit of output which is a function of, or depends on the speed or rate of production of the machine.

It shows the speed or rate of production at any time and every change in speed. It shows starting and stopping times, slowdowns, non-productive periods, the time and duration of each, and the actual producing and idle time. It supplies a complete impartial record of facts essential to economical plant operation and enables the business or production manager to increase operating efficiency, cut production costs and enforce a strict observance of schedules.



NEW AMTHOR RECORDER

The recorder movement is based on the centrifugal principle which affords a powerful and uniform action. The motion of the governor is transmitted directly to the pen arm by connecting links. Direction of rotations has no effect upon the governor mechanism. The pen arm movement remains unchanged even though the direction of rotation is reversed. The entire instrument movement is comprised of a few simple parts, sturdily constructed. The action is purely mechanical. It is entirely independent of temperature change or magnetic influence. The operation is made by a non-spillable glass reservoir pen. The chart is driven by a standard clock movement to give a 12 or 24 hour record as specified.

The recorder can be efficiently applied to practically any type of industry plant machinery, for purposes of either recording operation or to detect irregularities in operating conditions due to any number of undetermined causes such as faulty driving arrangements, etc. In addition to the continuous operation record, it also supplies specific constructive data directly pertinent to the operation and type of output of the individual machine. For example, on paper machines where the quality of paper to be produced demands machine operation, at a certain speed, the recorder is used to check and determine the exact speed for the given grades of stock. It can also efficiently be applied to waxing machines, roofing machines, etc. In the paper mill power plant, it can be installed on turbines to record speeds and operating regularity and the correctness of the overspeed or safety trip; on stokers—to record the rate and regularity of coal feed, etc.

Bulletin 105, describing the new recorder can be secured, by writing the manufacturers, the Amthor Testing Instrument Company, Inc., 309 Johnson Street, Brooklyn, N. Y.

Current Paper Trade Literature

Abstracts of Articles and Notes of Papermaking Inventions Compiled by the Committee on Abstracts and Bibliography of the Technical Association of the Pulp and Paper Industry

Clarence J. West, Chairman

For photostatic copies of articles appearing in the Abstract Section, address the chairman of the Abstracts Committee, Dr. Clarence J. West, National Research Council, 21st and B Streets, Washington, D. C. The charge for this service is: Photostats 9 x 11 inches, 18 cents each; 18 x 11 inches, 35 cents each; 22 x 18 inches, 70 cents each. minimum charge, 50 cents. Payment should be made upon receipt of invoice. Copies of United States patents may be obtained from the U. S. Patent Office, Washington, D. C., for 10 cents each. Send currency, not stamps.

Power House

Storage of Bituminous Coal in Mill Yards. Sydney C. Mifflen. Pulp Paper Mag. Can. 31: 1117-1119, 1138, (Oct. 8, 1931).—An article describing how the scientific piling of coal in storage yards reduces losses and minimizes rehandling expenses.—A.P.-C.

Handling Material with Chains and Cables. R. F. Thalner. Pulp Paper Mag. Can. 30: 1095-1097, (Oct. 1, 1931).—A brief discussion of the relative merits of chains and cables, showing their fields of usefulness.—A.P.-C.

Steam Generator vs. Boiler Horse-Power. A. J. Kull. Paper Ind. 13: 855-856, (Oct. 1931).—A brief discussion of the advantages of increasing boiler plant capacity by the installation of modern high-efficiency units.—A.P.-C.

Automatic Boiler Control. A. G. S. Sandison. Paper Maker & Brit. Paper Trade J. 82, No. 3; lii-lviii, (Sept. 1, 1931).—A comparison of the various systems and description of the most recent practice in automatic boiler control.—A.P.-C.

Ash Handling Methods. Reginald Trautschold. Paper Trade J. 93. No. 16: 43-47, (Oct. 15, 1931).—A brief discussion of the merits of the various systems of ash handling in boiler plants.—A.P.-C.

Steam and Power Cost Calculations Where Power and Heat Economies Are Inter-related. E. Grummer. Wochbl. Papierfabr. 62, No. 25: 601-603, (June 20, 1931).—By means of numerous equations and curves the author gives the important details for calculating and determining the feasibility for using steam and power in a paper mill with special emphasis on the use of electricity for drying purposes.—J.F.O.

Improvements in the Boiler Design for Small and Medium Sized Boilers. R. Schulze. Wochbl. Papierfabr. 62, No. 27: 646-649, (July 4, 1931).—Statistics show that 86 per cent of the boilers have less than 250 square meters of heating surface. The new Piedboeuf-Huygens boiler with super heater and Dano stoker operating at 13 atmospheres pressure is described, this type of boiler being suitably adapted to small installations. The heat insulation is very good, the loss due to radiation being only 1.5 per cent.—J.F.O.

Fire Regulator with Intermittent Stoker Feed. Zellstoff Papier 11, No. 7: 414-415, (July, 1931).—A new regulator is recommended for intermittent stoker feed and its construction and operation is described. Diagrams and illustrations accompany the article.—J.F.O.

Economic and Technical Viewpoints in the Design of the Power Plant in the Pulp and Paper Industry. Hoffer. Papierfabr. 29, No. 26: 390-400, (June 28, 1931).—In a very comprehensive paper the author gives a detailed review of all the factors in the design and operation of a power plant for pulp and paper mills.—J.F.O.

Pipe Lines for Water and Methods for Their Calculation. W. Elbing, Wochbl. Papierfabr. 62, No. 16: 373-5; No. 17: 399-401, (April 18, 25, 1931).—By means of numerous equations, curves and other data, the author shows how to calculate for the required size pipe, pressures, etc.—J.F.O.

Steam Accumulators. Zellstoff Papier 11, No. 4:209 (April, 1931).—Due to the large variations in steam requirements for the cooking of pulp, and for uses in other departments of pulp and paper mills, some sort of steam accumulator is necessary for economic practice. The principle and practice of several steam accumulators are given, including Ruths and others.—J.F.O.

Colloids and Boiler Feed Water. K. Hofer, Zellstoff Papier 11, No. 5, 269, (May, 1931).—The boundary between large particles in suspension and colloidal suspension is 10^{-4} millimeters, and between colloidal and molecular dispersion 10^{-6}. Important information is given regarding the formation of scale and its prevention.—J. F. O.

Variations in the Steam Requirements and the Uses of a Steam Accumulator in the Pulp and Paper Mill. Ernst Praetorius. Zellstoff Papier 11, No. 7: 416-418, (July, 1931).—Steam accumulators are a great saving when used in pulp mills where there are wide variations in steam requirement for the digesters. The operation and advantages of steam accumulators are given. Several types of accumulators are discussed. In modern boiler installations, variations in steam requirements can be more easily effected and the steam accumulator is not so necessary an auxiliary apparatus, as in older boiler installations where the steam accumulator is almost indispensable.—J. F. O.

Utilization of the Exhaust Steam in the Pulp and Paper Industry. Karl Mescher, Zellstoff Papier 11, No. 6: 357-359 (June, 1931).—Description of several valves and regulating devices for obtaining a greater efficiency and making better use of the exhaust steam.—J. F. O.

Possibilities for Saving in the Correct Use of Greases and Oils. H. Hassenbach, Zellstoff Papier 11, No. 6: 361-362 (June, 1931).—Results of experiments made in a pulp and paper mill. Several curves and other data accompany this article.—J. F. O.

Paper Specialties

Insulating Material. Charles A. Upson assignor to The Upson Co. U. S. pat. 1,802,543 (April 28, 1931).—A light, flexible and strong sheet of material for use in sound insulating and for padding in building construction, comprises a central body consisting of a bat that may be composed of animal, mineral or vegetable matter, such as cotton, hair, wood fibre, etc. Applied to the surface of the bat are thin flexible strips, which may be on one or both sides, and placed longitudinally, and then sewed through with suitable stitching. Finally a flexible liner sheet coated with adhesive on the under side is applied. The adhesive may be applied over the entire face of the liner so that it adheres directly to the bat, or it may be applied to adhere to the strips only.—A. P.-C.

Roofing Sheet. Eli L. Chamberlain assignor to Bird and Son, Inc. U. S. pat. 1,801,245 (April 14, 1931).—A base layer such as saturated felt is provided with a coating comprising a major portion of bituminous material such as asphalt and a minor proportion of inert material such as asbestos fiber, and with a surface layer of granular material such as crushed slate which is held in place by the coating.—A.P.-C.

Paper-Making Process. Lester Kirschbraun assignor to The Flintkote Co. U. S. pat. 1,802,561 (April 28, 1931).—A stock

which may be felted on a paper machine to produce a product suitable for use as a wall covering consists of a non-adhesive emulsion of water, colloidal clay and a fusible water proof light-colored base such as a resin, wax and oil composition, in which the water and clay form the external phase of the emulsion, mixed with fibrous pulp.—A.P.-C.

Floor-Covering Material. Dozier Finley assignor to The Paraffine Companies, Inc. U. S. pat. 1,802,009 (April 21, 1931).—A felt base is made containing light-colored stock and pigment to produce a light-colored body and it is impregnated with a light-colored saturant such as ester gum cooked with China wood oil.—A. P.-C.

Waterproof Paper. Clarence J. Strobel and Allen P. Tallman. U. S. pat. 1,803,816 (May 5, 1931).—Paper is made with paracoumarone and menhaden oil distributed throughout between its fibers.—A.P.-C.

Process and Apparatus for the Manufacture of Rubber-Impregnated Paper on Board. V. Antoine. Belg. pat. 373,846 (Nov. 30, 1930).—Paper or board is impregnated with rubber, applied in the form of latex between two or more plies of the finished sheet. The latex is applied to opposed faces of the plies which are then passed through a press to consolidate the plies into a single sheet and at the same time ensure penetration of the rubber throughout the thickness of the plies.—A.P.-C.

Apparatus and Method of Marbling Paper. Frank G. Crane and Joseph M. Ward, U. S. pat. 1,808,021 (June 2, 1931).—Transversely across the width of a fourdrinier machine are mounted a number of color troughs, each provided with a distributing roller having a spiral groove forming a flat-faced spiral rib on its surface across the width. There is a distributing blade for each roller, each blade being mounted to pick up the color from the spiral rib on the roll. The blades are separated or provided with pointed A-shaped teeth on the outer edge, nearest the paper. Each blade is reciprocated back and forth across the roller and the paper by means of a cam. When a general striped effect is desired as well as a mottled or marbled effect, brushes are provided in the form of flexible straps, by slotting a sheet of oilcloth or other fabric and mounting it so that the straps may be adjusted into or out of engagement with the surface of the sheet. The attachment may be applied to standard fourdrinier machines.—A.P.-C.

Machine for Reinforcing Paper. American Reinforced Paper Co. Belg. pat. 375,732 (Jan. 31, 1931).—The sheet to be reinforced is moved forward in the direction of its length, and a sheet of unspun fibers is applied transversely on the first sheet. The second sheet is cut into sheets of a length corresponding to the width of the first sheet, and the cut sheets are moved into position by means of movable combs.—A.P.-C.

Process and Apparatus for the Manufacture of Rubber-Impregnated Paper or Board. V. Antoine. Belg. pat. 374,658 (Dec. 31, 1930).—Paper or board is impregnated with rubber during manufacture by application of latex, preferably before it passes through the wet presses. The latex is applied to the top side of the sheet by a pipe co-acting with a roll forming a dam, and on the under side by a roll partly immersed in a tank containing latex.—A.P.-C.

Method and Apparatus for Making Photographic Film Backing Paper with Thin Edges. John G. Jones and Haywood G. Dewey assignors to Eastman Kodak Co. U. S. pat, 1,809,415, (June 9, 1931).—The paper skiving machine covered by the patent is for the purpose of producing long strips of paper for winding in with photographic film on spools, these strips having thinned portions along each edge to fit down light-tight against the inner ends of the spool flanges and thus exclude light from the film. The paper strip is passed around a roller and then over an anvil, there being a series of such anvils mounted to rotate freely upon a shaft, and spaced along the shaft so that there will be one anvil for each portion of the web of paper which is to be thinned. Each anvil has a crown, such that the paper passing over the crown is stretched at that point; and at this stretched portion the paper is reduced in thickness by means of the bristles of a rotating wire brush. The brushes are enclosed in a casing from which the dust is drawn by suction.—A.P.-C.

Method of Making Deckle Edge Paper. William J. Lamory assignor to American Writing Paper Co. U. S. pat. 1,810,316, (June 16, 1931).—Deckle edges are formed while the paper web is in a wet condition by removing by means of suction nozzles a portion of the fibers of the web while it is being fed forward on the paper-machine wire. The fibers thus removed are returned to the stock supply. The fibers may be removed near the edges of the web and/or in strips lengthwise of the web at spaced intervals, so that the sheet may be torn and thus provide a number of deckle-edged strips. The suction nozzles are carried on depending pipes which in turn are carried at the ends of horizontal pipes which are slidably supported in pipes, with stuffing boxes, so that the position of the nozzles may be adjusted across the width of the sheet, and by means of turnbuckles tney may be raised or lowered nearer or further from the sheet.—A.P.-C.

Rendering Paper, Cardboard, Etc., Resistant to Heat and Fire. Otto Herting assignor to Sani Paper Products Co., Inc. U. S. pat. 1,804,417 (May 12, 1931).—The material is impregnated with the products resulting from the inter-action in the presence of water of sodium silicate, sodium borate, aluminum sulphate and titanium sulphate.—A.P.-C.

Safety Paper. John Genoese. U. S. pat. 1,804,978 (May 12, 1931).—A fluid for use in preparing safety paper is formed from 5 ounces of alcohol, 2 quarts of water, 0.25 ounce of iodine, 0.25 ounce of cobalt nitrate and 0.125 ounce of sodium thiosulphate.—A.P.-C.

Method of Making Fast-Colored Crepe Paper. Galen H. Sayler assignor to Dennison Manufacturing Co. U. S. pat. 1,805,013 (May 12, 1931).—In forming a non-bleeding colored paper, a sheet of paper is simultaneously treated with a dye solution and with a solution of a fixing reagent.—A.P.-C.

Paper-pulp Receptacles Impervious to Cold or Hot Aqueous, Oily or Greasy Materials. Marino Gentile assignor of one-half to Samuel W. Weis. U. S. pat. 1,804,555, (May 12, 1931).—Paper-pulp receptacles are provided with a coating of gelatin and with an overlying coating of cellulose ester composition, such as cellulose acetate or nitrocellulose, containing a modifying agent, such as tricresyl phosphate or castor oil, to render the coating layers strongly adherent to each other.—A.P.-C.

Manufacture of Pulp Articles. Milton O. Schur assignor to Brown Co. U. S. pat. 1,803,410, (May 5, 1931).—A furnish for the manufacture of fiber conduits or other pulp articles comprises an aqueous suspension of a mixture of waste-paper stock, ground charcoal and beaten, long-fibered stock—A.P.-C.

Fibrous Sheet Material. Roy H. Kienle and Wm. J. Scheiber assignors to General Electric Co. U. S. pat. 1,812,749, (June 30, 1931).—Sheet material suitable for making laminated gears and various other products comprises a fibrous substance which has incorporated with the fibers thereof the infusible condensation product of aniline and formaldehyde.—A.P.-C.

Vulcanized Fiber. I. G. Farbenindustrie Aktiengesellschaft. Fr. pat. 702,351, (Sept. 18, 1930).—Vulcanized fibers of a predetermined specific weight are prepared by means of a zinc chloride liquor containing alkaline earth salts such as calcium chloride.—A.P.-C.

Zinc Chloride Solutions Used in the Manufacture of Vulcanized Fiber. I. G. Farbenindustrie Aktiengesellschaft. Brit. pat. 342,775, (Nov. 9, 1928).—Zinc chloride solutions used in the manufacture of vulcanized fiber are freed from calcium chloride by adding zinc sulphate before or during evaporation; the solutions are freed from precipitated calcium sulphate and evaporated.—A.P.-C.

Process for Making Paper Transparent, Especially for the Preparation of "Windows" on Envelopes, by Means of Balsam, Rosin and Similar Substances. Bruno Thomas, Vienna. Aust. pat. 122,278, (Aug. 15, 1929).—By heating the liquid balsam, rosin and similar substances, they are carried on to the paper without the aid of a solvent and held thereon until they have penetrated the paper fibers.—J.F.O.

Insulation Paper. Zellstoff Papier 11, No. 4, 208 (April, 1931). —Results of test to determine the electrical resistance of various papers. Thin paper is more resistant than thicker. The density of the paper is directly proportional to its electrical resistance. Good insulation paper should not have over 0.8 per cent ash, and should have a neutral reaction, as well as good physical properties. Numerous data are given.—J.F.O.

Ground Papers, "Mulch Paper." Zellstoff Papier 11, No. 3: 145, (March, 1931).—Results in Germany with mulch paper. A hydroloid paper is mentioned which is cheaper to make and withstands the action of water better.—J.F.O.

Vulcan Fiber. Zellstoff Papier 11, No. 3: 143 (March, 1931). —The main step in the manufacture of vulcan fiber is the immersion of a good grade of paper, which takes up solutions readily, in a bath of zinc chloride, the excess liquor drained off and the board pressed.—J.F.O.

Paper for Cement Sacks. H. Postl. Wochbl. Papierfabr. 62, No. 21: 497, (May. 23, 1931).—The rigorous qualifications for cement sack paper are enumerated, and from these it is easily seen that great care must be taken in selecting the raw materials and in processing such. The pulp should not be dried and the stock is beaten to a 23 degree Schopper Riegler. Too much beating makes the finished paper porous, decreases the fold and mullen. It is very necessary that the paper withstands the action of water for 24 hours. The stock should be diluted, one in 300 parts when coming on the wire.—J.F.O.

Process for the Manufacture of Pulp Wadding. Julius Richter, Vienna. Czech. pat. 33,015.—A fiberous felt in thin layers obtained from the fiberous mixture but without pressing, is repeatedly doubled, folded or treated in any other manner, so that a voluminous felt is obtained of the desired thickness. The process is carried out on a paper machine but without the couching and presses, and then led to the dryers.—J.F.O.

One Sided Finished Papers Made from Pulp. W. Sembritzki. Wochbl. Papierfabr. 62, No. 28: 670, (July 11, 1931).—The author speaks of certain difficulties encountered in the manufacture of one sided finished papers. The production of this grade of paper is profitable for small mills.—J.F.O.

More About Fire-proof Papers. Walter Obst. Wochbl. Papierfabr. 62, No. 17: 404, (April 25, 1931).—Impregnation in ammonium salts are very effective since ammonia fumes are given off when the paper becomes the least heated and these fumes quickly prevent any combustion. Besides the above substances, impregnation in a solution of 33 per cent titanium sodium sulphate and followed by a treatment with a 7.5 per cent solution of ammonium sulphate has been proven especially effective. Other suitable baths are mentioned. Lacquers are used to prevent the fire-proofing substances from being washed off.—J.F.O.

Acid Free Papers for the Wrapping of Porcelain. Max Knopff. Zellstoff Papier 11, No. 5: 268, (May, 1931).—It had been found that certain papers used for wrapping were harmful to the color and gold on porcelain. Papers free from acids must be used. A short discussion on the ways to eliminate this trouble is given.—J.F.O.

Rotogravure Papers. H. Postl. Zellstoff Papier 11, No. 5: 268 (May, 1931).—The necessary qualities of the paper are given along with details of manufacture.—J.F.O.

Pulp in the Artificial Silk Industry. D. Krueger. Zellstoff Papier 11. No. 6: 346-349, (June, 1931).—An abstract of a lecture of the same title, in which the author first gives a short review of the industry; stating the differences of the several kinds of artificial silks, raw materials, manufacturing, etc. and the methods of manufacturing the pulp and the testing of the same.—J.F.O.

Machinery

Calculations for the Energy Consumption of Paper Machines. Wochbl. Papierfabr. 62, No. 15 (April 11, 1931).—Discussion over a previous article on the same subject, in which two more engineers give their ideas on the methods of calculation. Several equations accompany this article.—J. F. O.

Calculation of the Power Required for Paper Machines. Alfred Wallner. Wochbl. Papierfabr. 62, No. 22: 524 (May 30, 1931).—Refutation and polemics over previous articles on the subject by Stiel and Sackel. Equations are used to illustrate the line of argument.—J. F. O.

Debarking Machine. Ralph V. Schafer. U. S. pat. 1,817,158 (Aug. 4, 1931).—The table supporting the log or slab to be barked is parallel to the barking knife, and is provided with a central transverse work-supporting depression thorugh which the cutter projects. The side walls of the depression narrow upwardly to reduce the area of contact between the depression and the log or slab. The top of the table extends sideways on both sides, but recedes from the depression into a narrow ledge, the depending sides of which are sloped, so as to permit the hands of the operator to be brought into close proximity with the knife while manipulating the log.—A. P.-C.

Machine for the Barking of Logs. H. Vogl, Czechoslovakia. Ger. pat. 511,901 (June 21, 1928).—A movable circular saw is placed before the barker to remove the knots and other objectionable parts of the log.—J. F. O.

Chipper Machine for Use With Wood Refuse. Heinrich Wigger & Co., Unna, Ger. pat. 517,135 (April 7, 1929).—The material to be chipped is led in the inlet trough to the chipper disc by a pair of feed rolls and held down by a cover coupled to the top roll.—J. F. O.

Fourdrinier Paper Machine. Joseph Atwood White assignor to The Moore and White Co. U. S. pat. 1,816,754 (July 28, 1931). —The frame of the fourdrinier part is divided into two sections, one carrying the breast and table rolls and the other carrying the suction boxes. The former is constructed so that it can be adjusted at two points, one near the breast roll and the other near the suction boxes. The supporting beams are in the form of wide, heavy C's, the lower stretch of the wire passing through the space between the upper and lower horizontal portions, and the opening being closed by a support block which is removed when the wire is to be changed. When the wire is to be removed and changed, all that is necessary is to remove the support blocks, lower the wire rolls on the under side of the return stretch of the wire, and move the couch roll back and support it from brackets projecting from the suction-box section of the frame; the old wire can then be removed laterally from the machine and a new wire placed in position.—A. P.-C.

Permanent Magnets for Removing Iron from Paper Stock. Anon. Paper Maker & Brit. Paper Trade J. 82, No. 2, xxxii (Aug. 1, 1931).—A special type of horse-shoe form permanent magnet, made of a special rustless cobalt steel, located either at the outlet of the screens or at some point in the head box, was found particularly effective in removing iron, together with a comparatively large quantity of grit and sand, from stock flowed over it at a depth of about 1 inch.—A. P.-C.

Method of Making a Seam for Woven Wire Belts. Hamilton Lindsay, assignor to The Lindsay Wire Weaving Co. U. S. pat. 1,807,628 (June 2, 1931).—A mandrel wire is temporarily fastened to each end of the fabric and across its whole width. A stitch-forming wire is passed around each mandrel wire and back into the fabric. The mandrel wires are withdrawn, whereby loops project from each of the fabrics. The ends are brought together so as to make the loops interfit, and a connecting wire smaller than the mandrel wire is passed through the passageway formed through the loops.—A. P.-C.

Effect of the Rubber Covering of Press Rolls on the Economy of Paper Making. Gustav Becker. Paper Maker & Brit. Paper Trade J. 82, No. 2: xxxv-xxxvi (Aug. 1, 1931).—A brief discussion showing the importance of the quality and condition of the

rubber covering of press rolls on water elimination at the presses, and in turn on the cost of drying.—A. P.-C.

Dandy Roll. Walter G. Trotman. U. S. pat. 1,815,939 (July 28, 1931).—This new type of dandy roll is intended to provide one central core on which may be mounted any one of various outer coverings. It consists generally of a body of suitable form and a unitary removable cover adapted to slip axially over the body. The latter comprises header plates, each with a stub shaft, and longitudinal tie rods affixed to the plates and enclosing a spirally formed member, the convolutions of which bear against the inner sides of the tie rods, so that the latter are supported throughout their lengths and form a strong rigid body for supporting the cover. A number of spaced rings surround the rods and have notches or grooves in their periphery, these notches being in line longitudinally with similar notches in the heads. The cover has an outer shell of woven wire formed in the shape of a tube and held in such shape by an inner core formed of wire or rod and which has on its inner face longitudinal bars which slide in the above-mentioned grooves when the cover is slipped over the core.—A. P.-C.

Suction Roll. Robert J. Marx. U. S. pat. 1,814,050 (July 14, 1931).—The invention relates to a means for sealing the edges of the suction box against the inside surface of the revolving suction roll. The open upper edges of the suction box are provided with outwardly extended rigid lips over the entire length of the suction area. The upper surface of these lips in cross section conforms to the contour of the inner surface of the shell, and the lips extend circumferentially over a sufficient distance to cover several rows of perforations in the shell, the shell being supported on its bearings so as to bear on the lips with an easy running fit but without intentionally induced pressure. Several shallow grooves are provided over the entire length of the upper surfaces of the lips, and these grooves are kept continuously full of water by the operation of the roll. The shell, as it revolves, continuously takes water from these grooves which remains suspended as a water film on the solid part of the inner circumference of the shell. This water film forms a seal for the vacuum chamber.—A. P.-C.

Dandy Roll and Its Work. J. T. Bain, Proc. Tech. Sect. Papermakers' Assoc. Gt. Brit. Ireland 11, Pt. 1: 180-185 (1930).—The difficulties experienced with dandy rolls and their cure are discussed.—A. P.-C.

Fluid Pressure Discharge for Continuous Filters. John T. Hoyt, assignor to Oliver United Filters, Inc. U. S. pat. 1,804,934 (May 12, 1931).—The layer of pulp which builds up on the screen of either disk or drum types of rotary filters used as thickeners or save-alls is stripped off by means of jets of water, steam, or compressed air, delivered through nozzles of standard ball and socket form to allow of adjusting them in all directions, according to the direction of rotation of the filter.—A. P.-C.

Save-All. Carl B. Thorne. U. S. pat. 1,804,188 (May 5, 1931).—The white water is delivered from a head box into a long narrow chamber, the side walls of which consist of wire screen of suitable mesh. The screen chamber is mounted so that it can be raised and lowered, the white water inlet pipe and recovered stock outlet pipe serving as guides. Starting from its uppermost position (with the bottom practically on a level with the top of the white water inlet), the screen chamber is slowly lowered; when it has reached its lowest position, it remains stationary until the screens are practically clogged with the stock and prevent further passage of water. It is then automatically raised, and simultaneously water sprays are turned on to wash the accumulated fiber from the walls of the screen chamber into the bottom, from which it is discharged through the outlet when the chamber reaches its topmost position. The chamber is then automatically lowered again and the cycle is repeated. A number of such units are preferably placed side by side.—A. P.-C.

Guide Collar for Winders. John M. Gallagher assignor to The Bagley & Sewall Co. U. S. pat. 1,813,920 (July 14, 1930).—The invention provides a guide collar which can be quickly locked to and removed from locking engagement with the spindle by a simple rotary movement and which is free from any protruding parts which might endanger the operator. This is effected by providing a number of symmetrically disposed locking rolls in the collar, which are pressed against the spindle or released merely by rotation of an eccentric locking ring.—A. P.-C.

Paper Cutting and Trimming Machine and Gauge and Gauge-Stop, Carrier, Hold-Down, and Safety Mechanism Therefor. Edward M. Brackett and Dietrich Daneke, assignors to The Brackett Stripping Machine Co. U. S. pat. 1,805,128 (May 12, 1931).—The patent provides for various improvements in the details of construction of knife cutters for piled paper.—A. P.-C.

Paper Sorting Machine. Peter F. Denner and Job C. Estes. U. S. pat. 1,812,201 (June 30, 1931).—The patent covers a complete paper sorting machine which permits inspection of the sheet on both sides. It provides an improved paper-sheet feed, reversing mechanism for turning the sheets bottom side up and sheet rejecting and discard means.—A. P.-C.

Device for Cutters or Slitters. Goebel A. G. Darmstadt. Ger. pat. 515,732 (Dec. 8, 1929).—The sheet is led between two shafts with circular knives of which one shaft can be displaced parallel to itself and in an axial direction while the knives are being changed—J. F. O.

Plate Shaped Knives for Slitters for Paper and Similar Substances. Remscheider Werzeugfabrik, A. G. Ger. pat. 515,733 (Sept. 24, 1929).—J. F. O.

Roll Stand for Longitudinal Cutting Machines. Maschinenfabrik zum Bruderhaus, Reutlingen. Aust. pat. 121,856 (Nov. 15, 1930).—Two or more roll stands are so arranged on a revolvable platform, that as soon as one roll has been cut, the one from the machine is started by rotating the platform.—J. F. O.

Slitter Device. Goebel Akt. Ges., Darmstadt, Ger. pat. 511,770 (July 20, 1929).—Addition to Ger. pat. 474,161. The knife holders are all arranged on one or more shafts capable of pendulating, whose position is so chosen that the sheet being cut is moved away from the knife by the pendulating shaft belonging to the knife.—J. F. O.

Device for Making Smaller Paper Board and Similar Materials, by Means of Discs on Two Shafts, with Saw Teeth Cut in the Discs. Leopold Schumann, Leipzig. Ger. pat. 516,505 (March 19, 1929).—The discs on the two shafts form an angle with each other. The discs are fastened to the shafts, which are parallel to each other in an inclined position—J. F. O.

Dirt Collector for Liquids Which Are Sluggish and Have A Tendency to Settle, Such as Paper Stock. Franz Hassmann, Kiel. Ger. pat. 516,212 (June 3, 1928).—The dirt collector is composed of a housing divided into two parts, in which the stream entering is led in the shortest way through a circular and yet spherical screen.—J. F. O.

Extractor for Board Presses. Henry J. Wiser assignor to International Fibre Board, Ltd. U. S. pat. 1,807,461 (May 26, 1931).—After the sheet has been formed and pressed, reduced air pressure is maintained on the upper die of the press to prevent the sheet from resting on the lower die when the latter is lowered. A plate carried on chains is introduced between the dies, pressure is applied inside the upper die to blow the sheet on to the underlying plate, and the latter then carries the sheet toward the drier.—A. P.-C.

Method and Apparatus for Automatically Regulating or Indicating the Consistence of Stock. Torsten Källe. U. S. pat. 1,789,386 (Jan. 20, 1931).—A branch pipe is connected to the outlet pipe from the pump through which passes the stock to be regulated. A motor-driven screw propeller is mounted in the branch pipe and forces the stock through a throttling orifice and past an impact member. The force with which the stock impinges against the impact member depends on the consistence of the stock, and is made to open and close an electric circuit operating the valve in the water pipe to control the amount of dilution water and keep the consistence constant.—A. P.-C.

POWER PLANT SECTION

REDUCING POWER COSTS THROUGH UNIT TREATMENT

Conducted by **Reginald Trautschold Consulting Engineer**

Power Plant Modernization Records

Periodic Stock-Taking Essential

Periodic stock-takings, or appraisals, in respect to power plant facilities, in regards to power plant equipment and power plant operation, constitute a very essential part of any program of plant modernization. Some such yardstick of progress is needed to appraise correctly the achievements in reducing power and steam costs, to effect a suitable coordination of the many unit operations entailed, and to focus attention upon the less satisfactory of the practices as followed in plant operation. This, because every dollar invested in the power plant bears watching. The results secured must invariably justify the investment, for no expenditure is warranted that does not earn a proper return.

These plant records should visualize conditions as they were and as they become, setting forth the need for the various betterments introduced, as well as the methods followed in bringing about the improvements. An excellent plan is to prepare from time to time a descriptive report and record of progress consummated, a good example of which is the following account of the new power plant serving the Munising Power Company, located on the southern shores of Lake Superior. A semi-technical presentation of this nature usually proves much more illuminating than the dry statistical records with which the accounting department has to work in making a proper allocation of expenses.

The development at Munising is especially noteworthy, moreover, for the reason that a very desirable and mutually profitable working arrangement has been effected between the paper mill interests and the local public utility, whereby the new power plant provides a maximum of some 1,500 kilowatt load for the power company's system. That is, the paper mill power plant not only supplies all the steam and power requirements of the mill property, but accommodates as well the load of the power company's system that is in excess of the output from the

Courtsey: V. D. Simons Inc., Engineers.

FIG. 1

General View of Plant of Munising Paper Co., Showing New Power Plant at Left.

company's hydro-electric developments. Prior to completing this new plant, in September of last year, the increase in the paper mill's business necessitated the purchase of a considerable amount of power from the Cliffs Power Company, the public utility, but these details as well as a good description of the new power plant are well covered in the account of the Munising Paper Company power plant development by one of the engineers associated with the undertaking.

New Power Plant of the Munising Paper Co.[1]

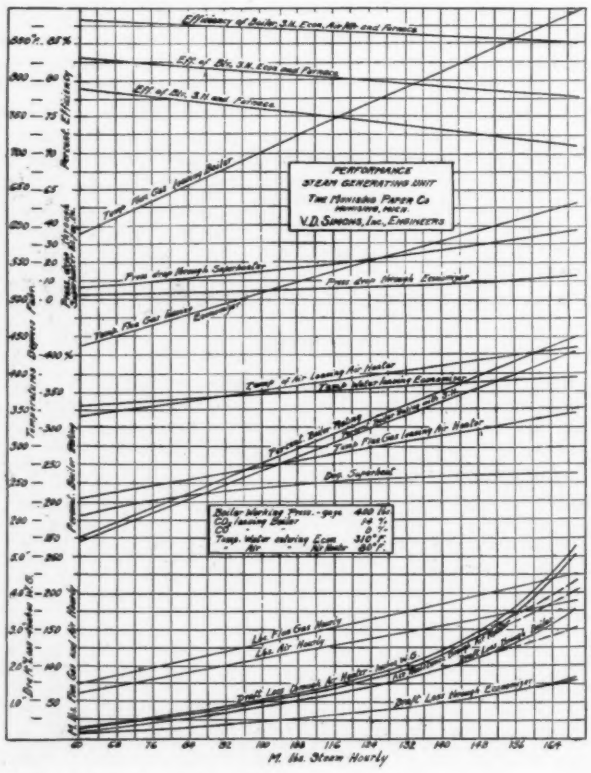
"The mill property of The Munising Paper Company, now served by the modern power plant in question, consists of wood yard facilities, a wood mill for cut-up purposes and barking, a chipping plant, a sulphite digester plant for the cooking of chips, an acid plant for the production of cooking acid, a bleach plant for the bleaching of sulphite fibers, a two machine paper mill for the production of fine sulphite papers, and a sheet and roll finishing department. To supply steam for the various activities and for the power requirements, the former boiler room housed a dozen 300-horsepower, vertical water-tube, boilers, operated at 150 pounds gauge pressure and fired by various makes of stokers. Only two of these boilers were equipped with economizers, the balance discharging their gases directly to the stack. As for the old engine room, it was equipped with several engine-generator units operated at 150 pounds gauge pressure, exhausting to a general low pressure steam system, and a low pressure turbo-generator, the latter taking steam from the engine exhaust system and expanding to vacuum.

"For a considerable period prior to 1928, these old power plant facilities were unable to cope successfully with the constantly increasing mill demands for electric energy and steam, so during 1929 the decision was made to proceed with the building of a modern power plant of sufficient capacity to supply all steam and electric energy for the mill property and for the accommodation, as well, of some of the load of the power company system. In this connection, numerous studies were made to determine the most economical pressure and temperature for an efficient and economical double-service power plant and the decision to generate steam at a gauge pressure of 400 pounds per square inch, superheating it to a final temperature of 700 degrees Fahrenheit, for use in a main power, extraction type, steam turbine, was the result of many carefully worked out heat balances and much preliminary investigation.

"In order to hold down the cost of the project, however, the continued use of reciprocating engines for driving the variable lineshafts of the paper machines and the continued utilization of the exhaust from these engines for a portion of the process operations, the exhaust supply being quite inadequate for caring for all process requirements, were deemed expedient. With the main steam supply under high pressure, 400 pounds, for efficient and economical power production, this made the use of double extraction on the main turbine obligatory, the mill requirements calling for steam supplies at 150 and 30 pounds pressure respectively, for mill-power and process needs.

"As erected, the new power plant occupies three reinforced concrete buildings, boiler house, turbine room and circulating pump house. These are modern in every respect and present a pleasing architectural appearance, but before describing their respective equipment complements attention can well be directed to the very essential fuel and water supply facilities utilized.

[1] By H. J. Prebensen, Mechanical Engineer.



Courtesy: V. D. Simons Inc., Engineers.

FIG. 2
Performance Steam Generating Unit.

Coal Handling and Water Supply

"Foresight on the part of the mill management provided for the construction some ten years previously of excellent coal dock facilities and these have now become a very important link in the splendid coal handling system serving the new power plant. An overhead, electrically operated, gantry crane is utilized to unload the coal barges, either to storage or to cars, and to reclaim fuel from the coal pile during the closed navigation season. A locomotive crane is used for cleaning up the pile, as well as for motive power in hauling the loaded cars from the dock to the siding at the new power plant.

"Drop bottom gondolas discharge directly into the hopper that formerly served the old power plant, from which a belt conveyor carries the coal to a bucket elevator that raises the coal to a distributing belt conveyor over the boiler room coal bunker. This distributing conveyor is provided with an automatic propelling and reversing tripper that distributes the coal over the bunker extending the full length of the bunker, so that the full bunker capacity is utilized at all times.

"The mill water supply is taken directly from the lake and flows by gravity through a 36-inch pipe line to a deep well situated under the pump-house. The temperature of this water is close to that of freezing much of the year and even during the hottest summer months is never above about 55 degrees Fahrenheit.

"The condenser circulating pump, equipped with automatic devices to guard against possible danger of shutdown, draws from this abundant cold water supply, the low temperature of which is a consideration of importance in the maintenance of high vacuum in the condenser. The house service water supply and also the makeup for the

evaporator feed are also obtained from the pump house well, insuring a plentiful supply of suitable water.

Boiler Room Equipment

"In the all important boiler room, space has been provided for two large modern steam generator units, but only one has as yet been installed. This single boiler has now been in continuous operation for somewhat over a year, being taken from the line only on occasional week-end shutdowns for inspection and cleaning. It is a highly efficient bent tube boiler, designed for 400 pound working pressure, of somewhat special design, in that a special slag screen is formed by the first row of tubes in the first tube bundle, every other tube being omitted. This arrangement increases the distance over which the slag would have to bridge and has proved eminently satisfactory in service. Otherwise, standard baffles are employed, dividing the boiler into three passes.

"Four rows of boiler tubes protect a 'hairpin' superheater located in the first pass of the steam generator and sufficient superheater surface is provided to raise the steam from the boiler to a total temperature of 700 degrees Fahrenheit, at an output of 150,000 pounds of steam per hour. The bare superheater tubes are rolled into saturated and superheated steam headers, the former of which is connected to a steam drum by means of several boiler tubes, rolled at either end, thus insuring even steam distribution to the superheater 'hairpin' elements.

"Exit gases from the third pass of the boiler leave at the top and pass downward through a bare tube, counter-flow type, economizer, with the upper ends of each tube row rolled into the steam drum of the boiler, while the boiler feedwater is supplied through regulators at the lower header of the economizer. The heating surfaces of the economizer and also those of the boiler are cleaned with hand-operated soot blowers, seven blower elements being provided for the boiler and four for the economizer.

"A plate type air-preheater is placed in the upward circuit of the flue gases leaving the economizer, the air passing downward through the air side of the heater and thence to the pulverizing mills and the burner boxes. Inspection doors are conveniently located in the gas side of the preheater to permit periodical observation of the plate conditions and a soot blower using steam is provided for cleaning the gas spaces. Although the plates are 16 feet high and gas temperatures as low as 240 degrees Fahrenheit pertain, no trouble has been experienced with clogging, even with the use of very wet coal.

Combustion Equipment

"The coal enters a feeding hopper over the individual feeders supplying fuel to the unit pulverizing mills, of the slow speed ball pusher type, and exhausters take the pulverized coal from the mill to vertical burners. One mill and one exhauster are provided for each set of two burners, an apportionment that has been found sufficient to accommodate demands of 175,000 pounds of steam hourly. The primary air is supplied directly to the mills under pressure at a temperature that never exceeds 300 degrees Fahrenheit, a special tempering device that bleeds in cold air from the discharge of the forced air draft fan, under automatic control, being provided.

"The main portion of the combustion chamber, up to the elevation just above the mud drum, is completely water cooled with cast iron block protected tubes, the furnace being operated 'wet,' slag in liquid form running down the furnace walls to the furnace bottom, constructed of coke blocks with voids filled in with slag and brickbats. This, it is believed, is the first installation of a slag-tapping furnace in an industrial power plant.

"Operation of this furnace during the past nine of ten months, consequently, has revealed some very interesting experiences. The first tapping was made after a hundred hours of operation and while the slag was inclined to run slowly, on account of the accumulation of brick dust, dirt, cold slag and some coke that did not fuse properly, this difficulty was soon overcome. The unit was started with coal that had previously been used for the old stoker fired boilers, coal with a very high ash fusing temperature. In spite of this, the slag ran freely when the carbon dioxide content of the gases of combustion was carried between 14 and 14.5 per cent. Subsequently, different coals of all varieties available by lake shipment have been used, some with high ash fusion temperatures and some with low, and no mixture has given trouble, so far as the removal of slag in molten form is concerned.

"It was expected that some provision would have to be made for fly ash collection from the stack, to insure a clean atmosphere around the paper mill, and a collection feature was provided in combination with the induced draft fans. It has been found, however, that the effect of the wet furnace bottom has been to eliminate a large portion of the ash ordinarily passing up the stack. Loss due to combustible in the ash has also been reduced to a minimum by the use of the slag-tapping furnace.

"Slag leaks have given no trouble to date and there has been no pushing out of the water walls around the bottom of the furnace, although it was expected that the cooling and heating of the slag on occasional week-end shutdowns would cause an appreciable movement of the side walls, with consequent slag leaks. By careful operation in cooling down the furnace and very gradual warming up, however, this has not been the case and there has been an absence of any wall bulging.

"The mechanism provided for tapping the slag from the 'wet' furnace resembles the apparatus used on an iron cupola, the hole into the furnace, at the minimum slag line, being closed with a clay plug and the spout closed with a vertical sliding gate operated by a hydraulic cylinder. The molten slag runs from the spout into a sluice box, where it is immediately cooled and broken into fines with streams of high-pressure cold water. These jets of water also convey the slag to the ash pump sump, to which the fly ash from the soot hoppers and dust collector is also carried. From the sump, the ash-soot-slag refuse is disposed of to fill by pump and sluice piping.

Draft System

"Both forced and induced draft fans are employed, the forced draft primary air to the pulverizing mills and the secondary air to the burner wind boxes being supplied by a multivane type high speed fan. This fan is driven through reduction gearing by a single stage, impulse type, non-condensing type steam turbine. Varying air requirements for combustion, with corresponding difference in resistance of the system, are met by varying the speed of the turbine, a motor driven valve, the control of which is manipulated by the combustion control system, throttling the steam flow of the driving turbine.

"The induced draft system incorporates a venturi type stack with two fan rotors combined in its base, the flue gases leaving the upper extremity of the air preheater and entering the base of the venturi stack on their upward passage to the chimney stack. Each fan rotor, driven by a single stage impulse, non-condensing, steam turbine, has sufficient capacity at top speed to remove the flue gases and provide adequate draft for operating the boiler at

about 50 per cent of peak rating. In normal operation, both rotors turn at approximately 60 per cent of full speed. Incidentally, the fan scrolls are somewhat extended and in combination with skimming dampers and multiple cyclones form the dust collection features of the unit.

"Three months of initial operation revealed the fact the ash handled was very abrasive. So much so, in fact, that portions of the rotor blades near the center ring wore unduly. To overcome this drawback, removable and replaceable 'half soles,' or wearing blades, were developed, which can be replaced without removing the rotor from the fan casing and without disturbing the balance of the rotor from the fan casing and without disturbing the balance of the wheel.

Generating Unit

"Space has been provided in the turbine room for two large turbo-generator units, one of which is installed. This unit is a 6,250 kva extraction, condensing, turbo-generator with twenty-six stages. The turbine end is designed for steam at a gauge pressure of 380 pounds and a temperature of 700 degrees Fahrenheit at its throttle. Three extraction points are provided: the first located between the 2nd and 3rd stages and automatically controlled to maintain a pressure of 150 pounds guage; the second, non-automatic, is located between the 7th and 8th stages, the nozzle of which is provided for feedwater heating service only; and the third, automatically controlled to maintain a pressure of 30 pounds guage, is located between the 11th and 12th stages. Beyond this latter point, the steam expands to the high vacuum produced by a surface condenser.

"The steam turbine is a combination impulse-reaction unit, with two stages of impulse buckets and twenty-four stages of reaction blading, with a high pressure automatic extraction device consisting of a solid diaphragm between the 2nd and 3rd stages. In front of this dveice is the outlet nozzle to the automatically operated extraction valve, behind which is the inlet from the extraction valve for the further expansion of the steam. The low pressure automatic extraction device is of the familiar grid type of valve and oil governing is employed throughout.

"The generator is a 5,000 kilowatt, 80 per cent power factor, machine of 6,250 kva. capacity, wound for 2,400 volts, 3 phases, 60 cycles. Cooling air for the generator is taken from outdoors through an air filter and after passing through the machine is exhausted into the basement of the turbine room for utilization in heating service.

"Excitation of the main generator field is supplied by a dual drive exciter set, consisting of a squirrel cage induction motor at one end and a single stage impulse type, non-condensing, steam turbine at the other, each directly connected to a 75 kilowatt, direct-current generator. The turbine takes steam from the high pressure system, exhausting to the low pressure extraction system, and is provided with an automatic cut-in device that immediately throws the load on the turbine in case of a failure on the part of the driving motor. No ventilation steam is required when the set is driven by the motor.

"The surface condenser has 4,300 square feet of surface, with the water side arranged in three passes. The steam nozzle of the condenser is bolted directly and is supported from the vacuum exhaust nozzle on the turbine casing, thereby eliminating the usual expansion joint. In order to avoid pipe strains being transmitted through the condenser to the turbine, rubber expansion joints are provided at the cooling waste inlet and outlet lines at the condenser, while the removal of non-condensible vapors from the condenser is effected by a two-stage steam jet air ejector. A centrifugal pump handles the condensate from the hotwell of the condenser to the main hotwell tank and the cooling water from the condenser is discharged to a mill water tank for wash service in the drum barkers of the sulphite and wood mills.

Feed Water System

"Condensate returns from the paper machines, contaminated with oil from the engine exhaust used in the driers, pass through oil removal filters and thence to the main hotwell, while returns from the mill heating system and all other closed process heaters that are oil free pass directly to the main hotwell. Evaporated makeup to the system is also admitted to the same tank, under float control from the evaporator.

"Feed water from a zeolite softener is fed to a makeup evaporator, a quadruple effect unit, the first effect of which operates with steam from the 150 pound, high pressure extraction system throttled down to 125 pounds gauge pressure. Flow control of this steam is effected by a float device in the main hotwell tank, while the vapor from the last effect of the evaporator is condensed in a surface condenser. Filtered water is pumped through this condenser and is subsequently discharged in the sulphite mill for use as hot wash water on the vacuum bleach washers. A makeup steam line is also provided for admission of low pressure steam to this condenser, in order that the wash water may be maintained at any desired temperature, an automatic temperature control device governing the amount of makeup steam admitted. Each evaporator effect has a small bleed line to the continuous blowdown system and all blowdowns drain to a flash tank, the vapor chamber of which is vented to the evaporator side. The blowdown then passes through a heat exchanger and is cooled to approximately 90 degrees Fahrenheit, the evaporator feed water passing through the liquid side of the heat exchanger, after which it is discharged to the sewer. The steam to the evaporator, incidentally, is throttled down in proportion to the makeup requirements, so that no hand regulation is normally required.

"Feed water from the hotwell is pumped to the direct contact deaerating feed water heater, to which steam from the low pressure extraction line is supplied, the heater venting through a small surface condenser to the atmosphere. for the removal of non-condensible gases. The suction of the main boiler feed pumps are taken from the bottom of this heater, which, on account of its elevation and the heater pressure, imposes a positive head of about 85 feet on the pumps, thus insuring water reaching the pump impellers at all times. The discharge of the boiler feed pumps pass through a closed type extraction heater on its way to the economizer, steam being supplied to the heater from the intermediate extraction point at a temperature of not over 60 pounds gauge which varies in accordance with the steam extraction load on the main turbo-generator.

"The pumping equipment of the feed water system consists of two boiler feed pumps, one turbine and the other motor driven, and two hotwell pumps driven by turbine and motor units respectively. The turbine driven pumps are provided with single stage impulse type, non-condensing, steam turbines running at a top speed of 3,000 revolutions per minute, while the motor driven pumps are direct connected to squirrel cage induction motors running at 1,750 revolutions per minute.

Instruments and Combustion Control

"Instruments are generously used to facilitate accuracy of control and the keeping of cost records. Recording pressure gauges and temperature recorders are employed for

all the various pressure system and steam flow meters for boiler, steam flow, evaporator steam, heater steam, turbine throttle, turbine extraction lines, condensate from the main condenser and for fan turbine usage. A boiler meter with individual recording pens measures the temperature of flue gases from the boiler and economizer, as well as the air flow, the temperature of gases entering and leaving the air preheater, as well as the entering and leaving air temperatures, recording the conditions continuously and simultaneously upon a single chart.

"Tempered air to the pulverizing mills is under temperature control, temperatures being continually recorded, while a venturi meter is used in combination with the boiler flow meter for checking purposes. A multipointer draft gauge, located on the main control board, indicates the pressure in the burner wind boxes, drafts in the pulverizing mills, in the boiler combustion chamber, in the last pass of the boiler and at the economizer and air-preheater outlets.

"The control boards of the combustion control system consist of a master panel that will accommodate two steam generators and an individual boiler on which are located devices for changing from automatic control to semi-automatic control or to manual push button control. Push buttons for the control of fan speeds, mill speeds and feeder speeds are also located on this latter panel, while ammeters are employed for indicating current flow to the mill and exhauster motors.

"The fan speeds are varied by throttling the steam driving the actuating steam turbines. This is accomplished by motor operated valves in the steam lines to the turbines which are in turn under the control of the combustion system.

Performance

"Before the performance of the efficient Munising Paper Company plant is presented, attention should be directed to some of the pertinent data regarding the distribution of heating surface, namely:

Surface	Square feet	Per cent
Water walls	1,236	3.09
Boiler	12,579	31.49
Superheater	3,850	9.64
Economizer	3,801	9.52
Air preheater	18,480	46.26
Total	39,946	100.00

"At the present time the plant load is running between 120,000 and 140,000 pounds of steam per hour, with peaks running as high as 175,000 pounds per hour, the latter occurring only, however, when some of the old engines are run and overload certain of the generator sets. At a load of 140,000 pounds of steam hourly, the carbon dioxide in the flue gases leaving the boiler is maintained at between 13.5 and 14.5 per cent, the gas temperatures leaving the boiler vary from 560 to 580 degrees Fahrenheit and those leaving the air preheater, from 240 to 260 degrees. Overall efficiencies vary from 85 per cent upwards to 88 per cent over monthly periods, while the draft losses have always been about 25 per cent below guarantees.

Plant Operating Personnel

"Finally, it is interesting to note that the excellent system of automatic control employed enables the plant to be operated with a very small crew and without imposing any arduous duty upon any individual. One fireman and a helper are on duty in the boiler room each working shift of eight hours, the fireman attending to the feed water equipment of the plant in addition to his watch of the steam generating unit. During his absence from the boiler operating floor, the helper, whose regular duties include the operation of the weigh larry, removal of fly ash from the soot pockets, tapping of slag from the furnace and general assistance to the fireman, stands by.

"In the turbine room, a single man supervises the switchboard and looks after the turbo-generator and its auxiliary equipment. The superintendent of power is held responsible for the operation and maintenance of the power plant and also for the power facilities in the mill departments."

Watching the Power Plant Dollar

A periodic, descriptive report of this general character affords an excellent opportunity for the active mill management to take stock of operating conditions and facilities, to watch the power plant dollar and see that it grows in value. The achievements between reports stand out and from the performance records of the generating battery the rate of betterment is conclusively shown, the economies effected by judicious plant investments and, what may be even more important, just what further program of plant modernization is advisable. From the statistical data effectively presented, the less satisfactory results, those requiring particular and prompt attention, become apparent, as well as the attainments in effacing power cost reductions.

New "Glaswick" Oil Cup

A new type of Wick Oil Cup is being marketed by The Lunkenheimer Company, Cincinnati, Ohio. It is called the "Glaswick" Oil Cup and provides the advantages of automatic lubrication, visibility of oil supply, maintenance of constant oil level with consequent uniform feed, and ease in replenishing the oil supply.

The "Glaswick" Oil Cup has a capacity of approximately 4 ounces of oil. It consists of a steel cup with a shut-off cock in the shank, and a glass bottle which fits over the top of the cup. The bottle is held securely to the cup by means of a steel wire and clamp. Tight closure between glass bottle and steel cup excludes dirt.

When placed in service, the steel cup is filled with oil. The glass bottle is also filled and placed in an inverted positon over the steel cup. Visible presence of oil in the glass bottle is assurance that the steel cup is full and the wick is absorbing sufficient oil to insure a constant uniform feed to the bearing.

The desired rate of feed is obtained by determining the number of strands of wick to be used, and the oil then feeds at a uniform rate; the cup needs no further adjustment.

When replenishing the oil supply, a number of spare bottles can be filled in the oil room, carried in a basket or box to the bearings and the empties replaced with full bottles.

The cock in the shank permits shutting off the flow when the bearings are idle, making it unnecessary to remove the wicks to stop the feed. This shut-off feature also conserves the oil supply when machinery is not running. Further, it provides an accumulation of oil to flush the bearing when the cock is opened. After the accumulated oil runs out, the "Glaswick" feeds at the predetermined rate.

A copy of booklet F-532 containing complete information and list prices will be sent upon request.

Government Wants 53,100,000 Lbs. of Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 23, 1931—Announcement has just been made by the Joint Congressional Committee on Printing that it will open bids on January 25 for the annual supply of paper and envelopes for the Government Printing Office for the fiscal year beginning March 1, 1932. The innovation in the schedule this year is that bids will be received for not only one year but for a six months period.

It is estimated that the Printing Office will use 53,100,000 pounds of paper next year as compared with 52,100,000 pounds used during the period of the present contracts.

Also it is estimated that the Printing Office will use 48,805,000 envelopes as compared with 52,230,000 under the present contracts.

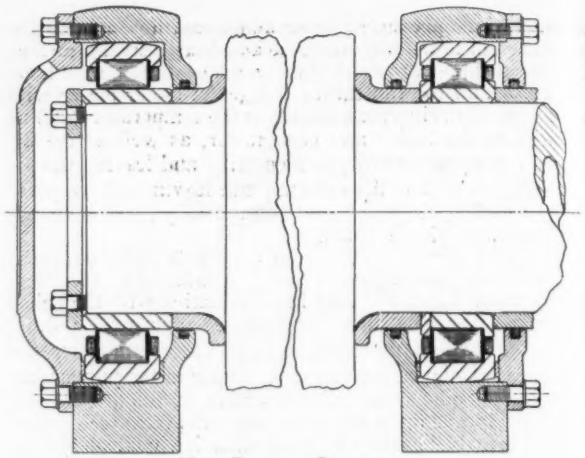
Following are the quantities of paper for which bids will be received: 3,000,000 pounds news print paper. 9,520,000 pounds machine-finish book paper. 125,000 pounds antique book paper. 225,000 pounds light-weight machine-finish book paper. 700,000 pounds 50 per cent rag machine-finish book paper. 80,000 pounds 75 per cent rag bond antique book paper. 170,000 pounds 100 per cent rag wove book paper. 3,950,000 pounds supercalendered book paper. 250,000 pounds halftone book paper. 630,000 pounds coated book paper. 150,000 pounds lithograph paper. 3,150,000 pounds mimeograph paper. 700,000 pounds U S M O safety writing paper. 25,000 pounds U S M O writing paper. 10,000 pounds safety writing paper. 4,335,000 pounds writing paper. 420,000 pounds map paper. 250,000 pounds chart paper. 995,000 pounds manifold paper. 6,223,000 pounds bond paper. 4,000 pounds parchment deed paper. 946,000 pounds ledger paper. 507,000 pounds index paper. 6,000 pounds tissue paper. 468,000 pounds cover paper. 955,000 pounds manila paper. 1,020,000 pounds kraft paper. 320,000 pounds manila tag board. 750,000 pounds calendered tag board. 80,000 pounds manila cardboard. 280,000 sheets railroad board. 980,000 pounds bristol board. 10,000,000 pounds U. S. Postal Card bristol board. 6,000 pounds paraffin paper. 210,000 sheets gummed paper. 251,000 pounds blotting paper. 7,000 pounds stereotype molding paper. 35,000 pounds oiled manila tympan paper. 3,000 pounds plate-wiping paper. 4,000 pounds blacklining paper, for case making. 50,000 sheets pressboard. 30,000 pounds high finish red sulphite. 3,000 pounds news board. 850,000 pounds chip and straw board. 36,000 pounds marble grained board. 72,000 pounds box board. 800,000 pounds binders board.

In cases where more than 1,000 reams are called for, proposals will be received for 1,000 reams or more.

New Drier Bearing

Further indication of the value and importance of specialization is seen in the announcement of a new type of bearing for paper mill drier installations by the Bantam Ball Bearing Company of South Bend, Ind. The drawing presented herewith shows one of these bearings which is said to be a distinct advance over anything previously achieved in this field. The Bantam Company, specialists for 32 years, has given particular attention to the development of bearings for heavy duty service and in the paper mill particularly. By a special heat treating process they have overcome the breakage of rollers in heavy duty service and Bantam bearings have now come to be known as the bearings which do not break.

The new bearings, represented by the above drawing, are particularly suitable for paper mill drier installations because they allow 3/8 inch for expansion and 1/8 inch for contraction. The bearing at the left, in the drawing, is free to float and takes care of the thrust due to expansion and contraction while the bearing at the right, in the illustration, carries thrust loads in both directions. As all the expansion and contraction is taken care of on a rolling surface any tendency toward sliding between the stationary parts is eliminated. Positive self-alignment is very easily secured because the bearings are held at the bottom only, allowing that part of the bearing not under the load to align itself.



NEW BANTAM BEARING

By means of Bantam's one-piece cage more rollers can be inserted per cage and, due to the special construction of the bearings taking the thrust load, the same number of rollers are used in both bearings—thus gaining considerable added capacity. The one-piece cage, exclusively Bantam's, has more rigidity and strength than the usual riveted cage. This design not only increases strength, but permits increasing the number of rollers, thus adding to capacity. Also this particular design of cage increases lubricating efficiency, another Bantam feature.

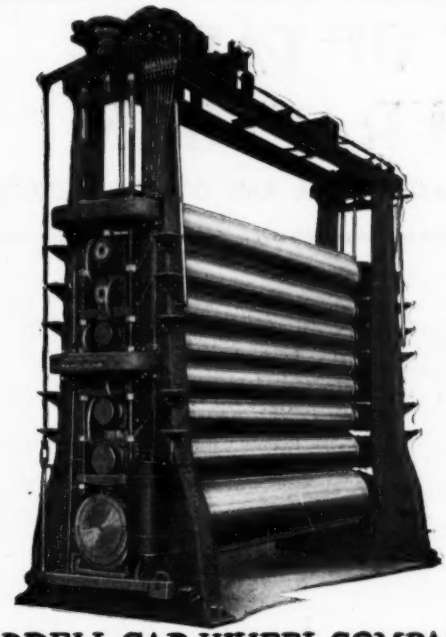
New Freight Rates Benefit Paper Mills

[FROM OUR REGULAR CORRESPONDENT]

GLENS FALLS, N. Y., December 21, 1931.—The new class freight rates which became effective this week are expected to benefit paper mills in this district and the railroads will suffer reduced revenues from this source as a result. The increases were commanded several months ago by the Interstate Commerce Commission but under the revision the rates are reduced on paper and lumber. The Delaware & Hudson Railroad is a large carrier of paper from Northern New York mills to the Metropolis and the rate for some time past has been twenty-five cents per hundred pounds from this city. Under the new rates the scale is reduced to twenty-one cents per hundred and paper mills will be benefitted considerably. It is not believed that the new scales will cause any noticeable increase in the amount of tonnage handled by the railroads.

A Fine Safety Record

The British Columbia Pulp and Paper Company, Ltd., Port Alice, B. C., has just established a very gratifying safety record. In 1929 for the six months June to November the company had a total of 21 accidents in the mill. For the same period in 1930, it had 15 accidents and for the same period in 1931 it had 9 accidents. This unusual good record is attributable to the fine work of the safety committee.



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CHILLED IRON ROLLS
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MACHINE CALENDER STACKS

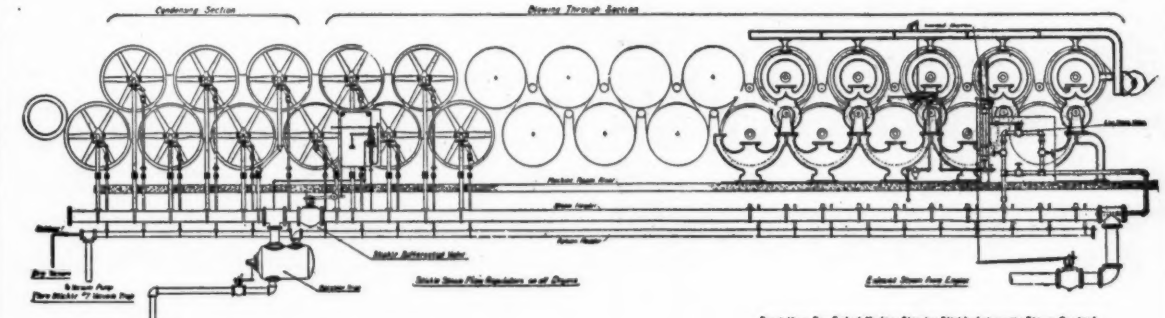
Specified on your new machine or for the new rolls for your old stacks insures rolls of maximum hardness and perfect finish.

Calender stacks are equipped with either Electric Motor, Hydraulic, or Ratchet Lift, all operated from the floor.

Improved Oiling Systems either completely circulating with oil filters and sight feed—Ring oiling closed end boxes—or a combination of both.

LOBDELL CAR WHEEL COMPANY
Established 1836
WILMINGTON, DELAWARE.

STICKLE'S SYSTEM OF DRYING PAPER



Front View Dry End of Machine Showing Stickle Automatic Steam Control

Back View Wet End of Machine Showing Stickle Compound Differential Rapid Circulating Drainage System

The Stickle Automatic Steam Control and Differential Rapid Circulating Drainage System will automatically maintain an evenly dried sheet at the lowest possible pressure at which a sheet of paper can be dried. The sheet will be held close to a one-half of one per cent moisture change.

Ask for Bulletin No. 18

STICKLE STEAM SPECIALTIES CO.
NEW YORK **INDIANAPOLIS, IND.**

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING DECEMBER 19, 1931

SUMMARY

Cigarette paper	657 cs.
Wall paper	34 bls., 15 cs.
Paper hangings	11 bls., 2 cs.
Painted paper	1 cs.
Wall board	6 cs.
News print	7758 rolls
Printing paper	12 rolls, 11 bls., 157 cs.
Drawing paper	31 cs.
Filter paper	31 bls., 18 cs.
Transfer paper	60 cs.
Decalcomania paper	27 cs.
Colored paper	27 cs.
Carbon paper	6 cs.
Tissue paper	9 cs.
Surface coated paper	5 cs.
Baryta coated paper	48 cs.
Metal coated paper	63 cs.
Photo paper	4 cs.
Press paper	1 cs.
Stencil paper	4 cs.
Velour paper	6 cs.
Writing paper	9 cs.
Cover paper	4 cs.
Felt paper	45 bls.
Adhesive paper	5 cs.
Wafer paper	10 cs.
Crepe paper	6 bls., 6 cs.
Raw card	14 cs.
Card board	300 cs.
Card board boxes	33 cs.
Miscellaneous paper	288 rolls, 362 bls., 159 cs.

CIGARETTE PAPER

Champagne Paper Corp., McKeesport, Havre, 222 cs.
Max Spiegel & Sons, American Importer, Hamburg, 10 cs.
Brown & Williamson Tobacco Co., Olympic, Southampton, 14 cs.
Brown & Williamson Tobacco Co., Lafayette, Havre, 9 cs.
Champagne Paper Corp., Lafayette, Havre, 30 cs.
American Tobacco Co., Lafayette, Havre, 250 cs.
Liggett & Myers Tobacco Co., Lafayette, Havre, 16 cs.
Standard Products Corp., Lafayette, Havre, 100 cs.
Max Spiegel & Sons, Ingria, Barcelona, 6 cs.

WALL PAPER

Universal Car-Loading Co., Berlin, Bremen, 3 bls., 5 cs.
Globe Shipping Co., American Importer, Hamburg, 1 bl.
F. J. Emmerich, Adriatic, Liverpool, 2 bls.
F. J. Emmerich, American Trader, London, 2 bls.
F. J. Emmerich, A. Ballin, Hamburg, 8 bls.
Irving Trust Co., A. Ballin, Hamburg, 10 cs.
Globe Shipping Co., Pres. Harding, Hamburg, 10 bls.
F. A. Binder, Columbus, Bremen, 8 bls.

PAPER HANGINGS

W. H. S. Lloyd & Co., American Trader, London, 1 cs., 11 bls.
O. G. Hempstead & Sons, Lafayette, Havre, 1 cs.

PAINTED PAPER

Hudson F'd'g & Shipping Co., Lafayette, Havre, 1 cs.

WALL BOARD

Treetex Corp., Kungsholm, Gothenburg, 6 cs.

NEWS PRINT

Jay Madden Corp., Berlin, Bremen, 460 rolls.
Perkins Goodwin & Co., Berlin, Bremen, 335 rolls.
W. H. Bell, Markland, Liverpool, N. S., 5467 rolls.
Parsons & Whittemore, Inc., American Importer, Hamburg, 156 rolls.
Stora Kopparberg Corp., Kungshlom, Gothenburg, 46 rolls.
Parsons & Whittemore, Inc., Milwaukee, Hamburg, 209 rolls.
Perkins Goodwin & Co., Milwaukee, Hamburg, 334 rolls.
——, Topdalsfjord, Oslo, 56 rolls.
Lunham & Reeve, Lagaholm, Kotka, 504 rolls.
——, A. Ballin, Hamburg, 191 rolls.

PRINTING PAPER

C. Steiner, Co., Statendam, Rotterdam, 12 rolls, 11 bls.
International F'd'g Co., Statendam, Rotterdam, 30 cs.
E. Dietzgen & Co., Statendam, Rotterdam, 64 cs.
Japan Paper Co., Statendam, Rotterdam, 6 cs.
W. L. Newberry, Olympic, Southampton, 6 cs.
Japan Paper Co., Excalibur, Marseilles, 6 cs.
E. Dietzgen & Co., A. Ballin, Hamburg, 11 cs.
Japan Paper Co., Port Curtis, London, 6 cs.
Public National Bank, Ingria, Marseilles, 8 cs.

DRAWING PAPER

Keuffel & Esser Co., Grete, Hamburg, 28 cs.
H. Reeve Angel & Co. Inc., American Trader, London, 3 cs.

FILTER PAPER

H. Reeve Angel & Co. Inc., Olympic, Southampton, 30 bls., 8 cs.
E. Fougera & Co., Olympic, Southampton, 3 cs.
C. Schleicher & Schull Co., A. Ballin, Hamburg, 7 cs., 1 bl.

TRANSFER PAPER

F. L. Kramer & Co., Columbus, Bremen, 31 cs.
Hensel Bruckman & Lorbacher, A. Ballin, Hamburg, 5 cs.
Atlantic F'd'g Co., A. Ballin, Hamburg, 16 cs.
——, A. Ballin, Hamburg, 8 cs.

DECALCOMANIA PAPER

B. F. Drakenfeld & Co., Adriatic, Liverpool, 9 cs. (duplex); 5 cs. (simplex).
C. W. Sellers, Columbus, Bremen, 1 cs.
C. W. Sellers, A. Ballin, Hamburg, 12 cs.

COLORED PAPER

E. Daiber, H. Jaspar, Antwerp, 2 cs.
J. Beckhard, Columbus, Bremen, 3 cs.
S. Gilbert, Columbus, Bremen, 2 cs.
F. Murray Hill Co., A. Ballin, Hamburg, 5 cs.
W. Bersch, A. Ballin, Hamburg, 10 cs.
J. J. Shore & Co., A. Ballin, Hamburg, 5 cs.

CARBON PAPER

Morganite Brush Co., Inc., Port Curtis, London, 6 cs.

TISSUE PAPER

W. J. Byrnes & Co., Adriatic, Liverpool, 5 cs.
——, Olympic, Southampton, 4 cs.

SURFACE COATED PAPER

Phoenix Shipping Co., Statendam, Rotterdam, 2 cs.
Hensel Bruckman & Lorbacher, Milwaukee, Hamburg, 3 cs.

BARYTA COATED PAPER

Globe Shipping Co., Berlin, Bremen, 26 cs.
Globe Shipping Co., Columbus, Bremen, 22 cs.

METAL COATED PAPER

Globe Shipping Co., Berlin, Bremen, 24 cs.
Hensel Bruckman & Lorbacher, Berlin, Bremen, 1 cs.
Taub Hummell & Schnall, Milwaukee, Hamburg, 3 cs.
K. Pauli Corp., A. Ballin, Hamburg, 33 cs.
F. C. Gerlach, A. Ballin, Hamburg, 2 cs.

PHOTO PAPER

J. J. Gavin, Olympic, Southampton, 4 cs.

PRESS PAPER

G. W. Millar & Co., Milwaukee, Hamburg, 1 cs.

STENCIL PAPER

Wedeman Godknecht & Lally, A. Ballin, Hamburg, 4 cs.

VELOUR PAPER

Bendix Paper Co., Milwaukee, Hamburg, 6 cs.

WRITING PAPER

American Express Co., Olympic, Southampton, 1 cs.
Japan Paper Co., Excalibur, Genoa, 6 cs.
De Picciotto, Lafayette, Havre, 2 cs.

COVER PAPER

International F'd'g Co., A. Ballin, Hamburg, 4 cs.

FELT PAPER

Heemsoth Basse & Co., Statendam, Rotterdam, 45 bls.

ADHESIVE PAPER

Heemsoth Basse & Co., Statendam, Rotterdam, 5 cs.

WAFER PAPER

Ipex Co., Statendam, Rotterdam, 10 cs.

CREPE PAPER

Penson & Co., Berlin, Bremen, 6 bls.
L. A. Consmiller, Berlin, Bremen, 6 cs.

RAW CARD

F. C. Strype, Berlin, Bremen, 14 cs.

CARD BOARD

American Express Co., A. Ballin, Hamburg, 300 cs.

CARD BOARD BOXES

Clay Adams Co. Inc., Milwaukee, Hamburg, 4 cs.
Coty Co., Lafayette, Havre, 29 cs.

MISCELLANEOUS PAPER

Keuffel & Esser Co., Grete, Hamburg, 1 cs.
Steiner Paper Corp., Statendam, Rotterdam, 32 cs.
Globe Shipping Co., Statendam, Rotterdam, 3 cs.
Henschel Naeve Co., Berlin, Bremen, 2 bls.
Kreamer & Co., Kungsholm, Gothenburg, 360 bls.
Manufacturers Trust Co., H. Jaspar, Antwerp, 28 rolls.
Gaevert Co. of America, H. Jaspar, Antwerp, 300 pkgs.
Keller Dorian Paper Co., Lafayette, Havre, 4 cs.
Manufacturers Trust Co., Lafayette, Havre, 13 cs.
P. H. Petry & Co., Lafayette, Havre, 4 cs.
Corn Exchange National Bank & Trust Co., Pres. Grant, Kobe, 24 cs.
Japan Paper Co., Pres. Grant, Kobe, 69 cs.
Iwai & Co., Pres. Grant, Kobe, 1 cs.
C. L. Voorhees, Pres. Grant, Yokohama, 8 cs.

RAGS, BAGGINGS, ETC.

Chase National Bank, Grete, Hamburg, 77 bls. cuttings.
Darmstadt Scott & Courtney, Winona County, Manchester, 111 bls. paper stock.
——, Adriatic, Liverpool, 10 bls. waste paper.
Darmstadt Scott & Courtney, McKeesport, Havre, 239 bls. rags.
——, Milwaukee, Hamburg, 6 bls. rags.
——, H. Jaspar, Antwerp, 192 bls. rags.
E. J. Keller Co. Inc., Berlin, ——, 34 bls. rags.
E. J. Keller Co. Inc., Coahoma County, ——, 200 bls. flax waste.

OLD ROPE

International Purchasing Co., Excalibur, Genoa, 169 coils.
International Purchasing Co., Francisco, Hull, 158 coils; 71 bls. yarn.
——, Pres. Harding, Hamburg, 65 coils.
Brown Bros. Harriman & Co., Habana, Coruna, 30 coils.

CASEIN

A. Hurst & Co., Lafayette, Havre, 125 bags.
——, A. Ballin, Hamburg, 60 bags.

WOOD PULP

Brown Bros. Harriman & Co., Grete, Hamburg, 375 bls. wood pulp, 78 tons.
Bulkley Dunton & Co., Ursula Siemers, ——, 2250 bls. wood pulp, 450 tons.
——, Ursula Siemers, Hernosand, 300 bls. sulphate, 50 tons; 2010 bls. sulphite, 335 tons.
——, Berlin, Bremen, 407 bls. wood pulp.
Gottesman & Co. Inc., Kungsholm, Gothenburg, 1350 bls. sulphite.
Parsons & Whittemore Inc., Kungsholm, Gothenburg, 360 bls. sulphate.
J. Anderson & Co., Kungsholm, Gothenburg, 250 bls. sulphite.
Perkins Goodwin & Co., Kungsholm, Gothenburg, 315 bls. sulphate.

(Continued on page 50)

Sulphur

A FIRST REQUISITE

in

Paper Making

Large Production
Ample Reserves
Prompt Deliveries
Purity 99½%

TEXAS GULF SULPHUR CO.
75 E. 45th Street New York City
Mines: Gulf, Newgulf and Long Point, Texas

THE DRAPER FELTS

All kinds and styles of Felts for all kinds and styles of Papers.

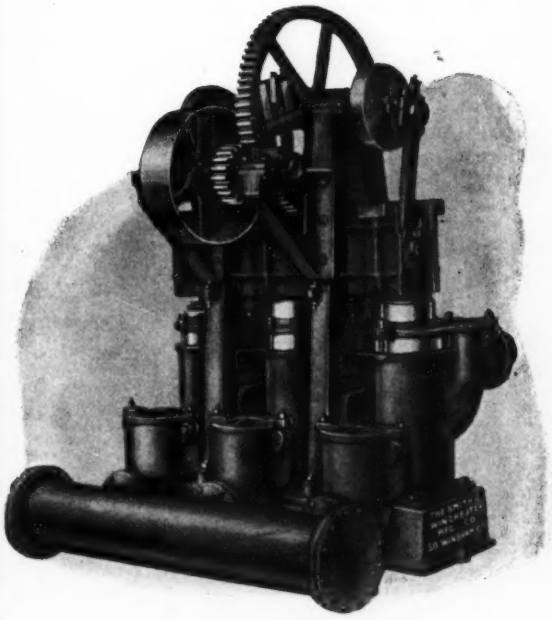
Write us about your Felt problems and let us help you reduce your Felt Costs—we will call anywhere at any time.

DRAPER BROS. COMPANY
CANTON, MASS.
Woolen manufacturers since 1856

STUFF PUMPS

OUR "TRIPLEX" STUFF PUMP

is on a par with all other Pulp and Paper Mill Equipment we manufacture. The fact of its satisfactory use in leading mills attests its efficiency.



Built for service, it handles stock with speed and assurance of satisfactory results.

The SMITH & WINCHESTER MFG. CO.
SOUTH WINDHAM, CONN.

FOR OVER A CENTURY BUILDERS OF
FOURDRINIER and CYLINDER MACHINES, PAPER BAG MACHINES, JORDAN ENGINES

Imports of Paper and Paper Stock

(Continued from page 48)

Johaneson Wales & Sparre Inc., Kungsholm, Gothenburg, 150 bls. sulphate.
E. M. Sergeant & Co., Kungsholm, Gothenburg, 598 bls. kraft soda pulp.
Brown Bros. Harriman & Co., Kungsholm, Gothenburg, 265 bls. sulphite.
Bulkley Dunton & Co., Kungsholm, ——, 1080 bls. wood pulp.
Johaneson Wales & Sparre Inc., Weissesee, Obbola, 2625 bls. sulphate, 375 tons.
Parsons & Whittemore Inc., Weissesee, Sundsvall, 900 bls. mechanical pulp, 152 tons.
Johaneson Wales & Sparre Inc., Weissesee, Sundsvall, 4455 bls. sulphite, 886 tons.
Bulkley Dunton & Co., Bornholm, ——, 500 bls. wood pulp, 101 tons.
——, Bornholm, Hernosand, 1500 bls. sulphite, 254 tons.
Johaneson Wales & Sparre Inc., Bornholm, Sundsvall, 1000 bls. chemical pulp, 203 tons.
Pagel Horton & Co., Inc., America, Gefle, 4500 bls. sulphite.
J. Anderson & Co., America, Hernosand, 150 bls. sulphate.
——, Milwaukee, Hamburg, 310 bls. wood pulp, 62 tons.
Castle & Overton Inc., Milwaukee, Hamburg, 1115 bls. wood pulp, 223 tons.
J. Anderson & Co., Topdalsfjord, Oslo, 1925 bls. sulphite.
Castle & Overton Inc., Pres. Harding, Hamburg, 700 bls. wood pulp, 118 tons.
A. Giese & Son, A. Ballin, Hamburg, 50 bls. wood pulp.
Castle & Overton Inc., A. Ballin, Hamburg, 875 bls. wood pulp, 175 tons.

WOOD FLOUR

State Chemical Co., Statendam, Rotterdam, 700 bags.
Corn Exchange Bank & Trust Co., Topdalsfjord, Flekkefjord, 600 bags, 30360 ks.
B. L. Soberski, Topdalsfjord, Frederickstad, 3375 bags.
State Chemical Co., Saco, Rotterdam, 560 bags, 33180 ks.
——, Saco, Rotterdam, 1000 bags, 50750 ks.

ALBANY IMPORTS

WEEK ENDING DECEMBER 19, 1931

A. P. W. Paper Co., Polarland, Sheet Harbor, 6649 bls. wood pulp, 1085 tons.
Bulkley Dunton & Co., Ursula Siemers, ——, 15750 bls. wood pulp, 3150 tons.
Perkins Goodwin & Co., Weissesee, Obbola, 17500 bls. sulphate.
National Bank & Trust Co., Bornholm, Norrsundet, 15000 bls. sulphate, 3048 tons.
Price & Pierce, Ltd., America, Orviken, 11400 bls. wood pulp.
J. Andersen & Co., America, Hernosand, 6450 bls. sulphite.
——, America, Hernosand, 6000 bls. sulphate.

PHILADELPHIA IMPORTS

WEEK ENDING DECEMBER 19, 1931

Castle & Overton Inc., McKeesport, Havre, 46 bls. rags.
Katzenstein & Keene Inc., McKeesport, Havre, 148 bls. rags.
E. J. Keller Co. Inc., McKeesport, ——, 43 bls. rags.
Katzenstein & Keene Inc., McKeesport, Dunkirk, 231 bls. rags.
Castle & Overton Inc., McKeesport, Dunkirk, 98 bls. rags.
Bulkley Dunton & Co., Weissesee, ——, 2000 bls. wood pulp, 400 tons.
Perkins Goodwin & Co., Weissesee, Sundsvall, 780 bls. mechanical pulp, 132 tons.
Parsons & Whittemore Inc., Weissesee, Sundsvall, 450 bls. mechanical pulp, 26 tons.
Johaneson Wales & Sparre Inc., Weissesee, Sundsvall, 3000 bls. sulphite, 507 tons.
E. J. Keller Co. Inc., West Harcuvar, ——, 49 bls. rags.
E. J. Keller Co. Inc., London Exchange, ——, 71 coils old rope.

CAMDEN IMPORTS

WEEK ENDING DECEMBER 19, 1931

Pagel Horton & Co. Inc., Weissesee, Munksund, 6000 bls. sulphate, 1000 tons.

PORTLAND IMPORTS

WEEK ENDING DECEMBER 19, 1931

J. Anderson & Co., Bornholm, Soderhamn, 3000 bls. sulphate, 609 tons.
Johaneson Wales & Sparre Inc., Bornholm, Sundsvall, 3150 bls. sulphite, 563 tons.
Gottesman & Co., Inc., Hjelmaren, Sweden, 6000 bls. wood pulp.

BOSTON IMPORTS

WEEK ENDING DECEMBER 19, 1931

T. D. Downing & Co., Winona County, Manchester, 38 bls. paper stock.
G. M. Graves Co., Missouri, London, 77 coils old rope.
1st National Bank of Boston, Missouri, London, 23 bls. rags.
——, Missouri, London, 12 bls. rags.
National Shawmut Bank, Missouri, London, 26 bls. rags.
Baring Bros. & Co., Missouri, London, 268 bls. waste paper.
Stone & Downer, Missouri, London, 2 cs. gummed paper.
Crocker Burbank Co., Missouri, London, 463 bls. waste paper.
Brown Bros. Harriman & Co., Missouri, London, 151 bls. rags.
——, Excalibur, Alexandria, 91 bls. rags.
Bulkley Dunton & Co., Simon von Utrecht, ——, 1625 bls. wood pulp.

BALTIMORE IMPORTS

WEEK ENDING DECEMBER 19, 1931

——, Winona County, Manchester, 119 coils old rope.
Pagel Horton & Co. Inc., Weissesee, Munksund, 4200 bls. sulphate, 700 tons.
Parsons & Whittemore Inc., Weissesee, Sundsvall, 1350 bls. mechanical pulp, 228 tons.
Jay Madden Corp., Weissesee, Sundsvall, 600 bls. mechanical pulp, 101 tons.
Bulkley Dunton & Co., Lagaholm, ——, 5000 bls. wood pulp.
Atterbury Bros. Inc., Lagaholm, Wiborg, 2024 bls. sulphate.
Castle & Overton Inc., Lagaholm, Wiborg, 1641 bls. wood pulp.
Lagerloef Trading Co., Lagaholm, Wiborg, 3840 bls. sulphite.
Lagerloef Trading Co., Lagaholm, Kotka, 640 bls. sulphate; 260 bls. mechanical pulp.
Bulkley Dunton & Co., Simon von Utrecht, ——, 7750 bls. wood pulp.
Gottesman & Co. Inc., Argosy, Sweden, 4250 bls. wood pulp.
Gottesman & Co. Inc., Simon von Utrecht, Sweden, 10410 bls. wood pulp.
Parsons & Whittemore Inc., Simon von Utrecht, Sweden, 1200 bls. sulphite.

NORFOLK IMPORTS

WEEK ENDING DECEMBER 19, 1931

Lagerloef Trading Co., Lagaholm, Wiborg, 3400 bls. sulphate; 1584 bls. sulphite; 508 bls. mechanical pulp.
W. M. Stone & Co., Lagaholm, Kotka, 255 rolls news print.
Old Dominion Paper Co., Lagaholm, Kotka, 151 rolls news print.
H. Reeve Angel & Co. Inc., Lagaholm, Kotka, 75 rolls news print.
Lagerloef Trading Co., Lagaholm, Kotka, 850 bls. sulphate; 393 bls. sulphite; 1580 bls. mechanical pulp.

NEW ORLEANS IMPORTS

WEEK ENDING DECEMBER 19, 1931

Pagel Horton & Co. Inc., America, Husum, 4200 bls. sulphate.

Whiting Papeterie Plant Busy

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., December 22, 1931.—The papeterie plant of the Whiting Paper Company, removed here from New York City the past few months, is running full time and employing over 125 hands. The change has been brought about gradually, the first of the machinery being moved here some months ago. Three floors in the former No. 1 mill of the Lyman Mills, bought by the Whitings, and a floor in the No. 4 division are being used. The Lyman Mills property allows of almost indefinite expansion.

Sale of Paper Plant To Go Forward

[FROM OUR REGULAR CORRESPONDENT]

DENVER, Col., December 19, 1931.—Judge E. V. Holland in the district court ordered the clerk of his court to pay a 50 per cent disbursement on all approved claims against the Colorado Pulp and Paper Mill Company and at the same time re-instructed Sheriff Lee Templeton that the paper company's properties must be sold by public auction on the steps of the Adams county court house, Brighton, Colorado, at 11 a.m., December 29.

Norwegian Pulp Production

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 23, 1931—Commercial Attache M. H. Lund, at Oslo, reports that wood pulp production by the Norwegian mills during October comprised 11,655 metric tons of bleached sulphite pulp, 8,218 tons of unbleached sulphite, 1,052 tons of sulphate, and 46,116 tons of wet groundwood. Production for the month of October was nearly on a level with the same month of last year so far as chemical pulp was concerned, while the output of mechanical pulp exceeded that of last year by nearly 10 per cent.

Finnish Pulp Exports Increase

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 23, 1931—Finnish exports of chemical pulp during the first ten months of the current year, in spite of reported low prices and financial handicaps, were considerably larger than during the corresponding period of last year, shipments of sulphite pulp having risen from 297,590 metric tons to 312,340 metric tons and shipments of sulphate pulp from 92,867 tons to 150,759 tons.

Cotton and Paper Rolls
Super Calenders
Friction Calenders
Embossing Calenders
Hydraulic Presses and Pumps

Successors to the Granger Foundry & Machine Co.

The Textile-Finishing Machinery Company
PROVIDENCE, R. I.

EXTENSION MODEL

Cambridge Surface Pyrometer

is an instrument which applied to the surface of a dryer or calender roll, instantly indicates the exact surface temperature. Its use enables the operator to locate water logged rolls and to maintain every roll at the correct temperature for efficient progressive drying.

The instrument is compact, rugged and easy to read. The extension rod permits temperature checking across the entire roll. Scale ranges are 50-250° and 50-400°F.

Send for List No. 194-P.T.

CAMBRIDGE INSTRUMENT CO., INC.
3512 GRAND CENTRAL TERMINAL, NEW YORK

CLEANER PULP

SEMCO BONDED LININGS
installed in

Machine Chests
Stock Chests
Slush Tanks
Couch Pits
Wire Pits
Beaters
etc.

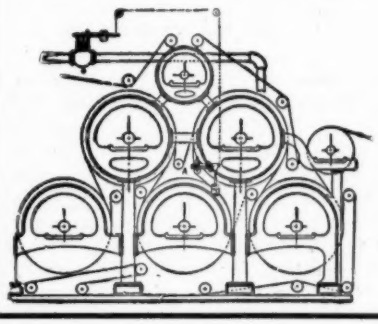
will keep your pulp free from the dirt which has its source in sand and scale from concrete and steel tanks.

Every Stebbins Lining carries a Bonded Guarantee.

STEBBINS
Engineering & Manufacturing Company

WATERTOWN, New York SEATTLE, Washington

The Pickles Drying Regulator



WE ARE SAFE IN OUR PROPOSITION
YOU'LL MAKE NO MISTAKE IN ACCEPTING IT

Pickles Drying Regulator

will do everything we claim for it and more. The test costs you nothing until you are satisfied. Many mills tried one and now have every machine equipped. Write for list of users and other information

W. F. PICKLES **Buckland, Conn.**

New York Market Review

Wednesday, December 23, 1931.
Office of the PAPER TRADE JOURNAL.

Trading in the local paper market was fairly active during the past week. Demand for the various standard grades of paper was well maintained, in most instances. Sales forces of the leading paper organizations are generally looking forward with confidence to the coming year. The price situation is practically unchanged.

There were no further developments in the news print situation. Production in the United States and Canada has declined and is now being maintained at approximately 55 per cent of rated capacity, according to information gathered by the News Print Service Bureau. Shipments against contract are going forward in about the same volume.

Production of box board is proceeding at 55 per cent of capacity and business is affected by the usual slowing down at this period of the year. The fine paper market is displaying some activity, with book, bond, writing and cover papers in seasonal request. Tissues are moving in seasonal volume. The coarse paper market is marking time.

Mechanical Pulp

Steadiness prevails in the ground wood market. Offerings of both domestic and imported mechanical pulp are about sufficient volume to take care of current requirements. Inquiries for future delivery are fairly numerous. Prices are generally holding to previously quoted levels.

Chemical Pulp

Conditions in the chemical pulp market are fairly satisfactory for the time of the year. Demand for the various grades of foreign and domestic chemical pulp is well up to average for the season. Inquiries for 1928 delivery are fairly frequent and should materialize in some good orders in the near future. No further price changes were reported.

Old Rope and Bagging

Quietness continues to reign in the old rope market. Most of the demand for imported and domestic old manila rope is along routine lines. Small mixed rope is only moving slowly. The bagging market is listless. Both scrap and gunny bagging are dull, while roofing bagging is arousing little interest at present. Prices are nominal.

Rags

Paper mill demand for domestic rags is rather restricted. Cotton cuttings continue quiet, while roofing grades are in the doldrums. Prices are strictly nominal, in most instances. No radical changes were reported in the imported rag market. Traders are still holding off somewhat, due to the uncertainty of the foreign exchange situation.

Waste Paper

Board mill demand for the lower grades of paper stock has slackened down considerably. The dullness of the waste paper market is attributed in most quarters to the influence of the coming inventory period. The better grades of paper stock are fairly steady. Both stock is going forward in satisfactory volume for the time of year. Prices are holding to previously recorded levels.

Twine

The local twine market continues fairly buoyant. Demand for the various grades is moderately persistent. Sales continue to run well up to the average of the preceding year at this period. Despite keen competition for desirable orders, prices are generally holding to formerly quoted levels.

More Agents for Howard Line

A decided increase of agents for Howard bond, ledger and mimeograph in 1931 over the previous year is reported by The Howard Paper Company, Urbana, Ohio, which is proof that quality is recognized by distributors throughout the United States.

Thirty-three new agents have signed up with the company to represent the Howard line during the year, establishing a new record in the number of distributors added by a paper company in 1931.

Howard bond and its companion papers are now represented in practically every part of the country as well as abroad.

Beaverland Corp. Gets Verdict

[FROM OUR REGULAR CORRESPONDENT]

LOWVILLE, N. Y., December 19, 1931.—The case of the Beaverland Corporation, of this village, against the Hano Paper Corporation, Harrisville File Folder Corporation and Philip L. Hano, of Brooklyn, was tried in Supreme Court here this week and resulted in a verdict for the plaintiff of $684 with interest. The jury was out about one hour before returning its verdict. The plaintiff concern sued the Hano Paper Company for the purpose of recovering a sum alleged due them for a machine sold some time ago. The Beaverland concern was represented by George S. Reed in the proceedings while the firm of Garfield and Seligson appeared for the defendants.

Paper Mill Operations

With the exception of some mills making specialties, the average status of operation of the paper industry in and near Appleton, Wis., is 80 to 85 per cent. Allied plants making paper mill machinery and other products range from 30 to 50 per cent in the extent of their operations. Some are giving their men four to five days a week and using a full crew. Others are operating full time but dividing the employment so each man puts in at least four days a week. Orders appear to be sufficient in volume to insure operation for the winter months at least on the present scale. An upturn is definitely expected in the spring.

WOOD PULP
AGENTS

PRICE & PIERCE, Ltd.,

60 EAST 42nd ST.
NEW YORK

Glens Falls Machine Works

GLENS FALLS, N. Y.

Manufacturers of

IMPROVED ROGERS AND SPECIAL WET MACHINES

STANDARD WET MACHINES

GLENS FALLS ROLLING ACTION FLAT SCREEN

THE A. D. WOOD SAVEALL, THICKENER, WASHER AND WATER SCREEN

GLENS FALLS DECKER AND DECKER WASHER

GLENS FALLS ROTARY SULPHUR BURNER

PULP GRINDERS, THREE OR FOUR POCKET (Roller Bearings)

Ask us about the
OLIVER-ROGERS WET MACHINE

West Virginia Pulp and Paper Company

Manufacturers of

SUPERCALENDERED
and
MACHINE FINISHED BOOK
and LITHOGRAPHIC
PAPERS

Offset, Envelope, Bond, Writing, Cover and Music Paper, Index Bristol, Post Card and Label Papers

High Grade Coated Book

also

KRAFT WRAPPING AND KRAFT ENVELOPE

Bleached Spruce Sulphite Pulp, Soda and Kraft Pulp

230 Park Ave. New York
35 East Wacker Drive Chicago
503 Market St., San Francisco, Cal.
Sixth and Chestnut Sts., Philadelphia, Pa.

TI MACHINE SEMI-STEEL
SECTIONAL BURRS

Manufactured in 3, 4, 5, 6 and 7 cuts per inch.

SHARP — STRONG — TOUGH

3" Diam.

ILLUSTRATION SHOWS ½ SIZE

OTHER SPECIALTIES

WARREN IMPROVED CALENDER With flexible blades, Universal Adjustment and Control, Patented — DOCTORS

WARREN IMPROVED DOUBLE DRUM— WINDER

BALL HYDRANT for Stock Circulating Systems — VALVES

AND OTHER PAPER MILL MACHINERY

MANUFACTURED BY
TICONDEROGA MACHINE WORKS
TICONDEROGA, N. Y.
SEND FOR BULLETINS—ASK FOR PRICES.

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, December 23, 1931.

BLANC FIXE.—The blanc fixe market was rather quiet during the week. Prices remained according to schedule. Pulp is quoted at from $42.50 to $45 per ton, while the powder is selling at from 3¾ cents to 4½ cents per pound, in barrels, at works.

BLEACHING POWDER.—Trading in the bleaching powder market was only moderately active. Contract shipments were about up to the average. Prices unchanged. Bleaching powder is quoted at from $1.75 to $2 per 100 pounds, in drums at works.

CASEIN.—The casein market continues dull. Domestic standard ground is quoted at 7½ cents and finely ground at 8 cents per pound. Argentine standard ground is selling at 8½ cents and finely ground at 9½ cents, per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Demand for caustic soda was irregular, prices holding to former levels generally. Solid caustic soda is quoted at from $2.50 to $2.55 and the flake and the ground at from $2.90 to $2.95 per 100 pounds, in large drums at works.

CHINA CLAY.—The china clay market shows a steady tone. Imported china clay is quoted at from $11 to $15 per ton. Domestic paper making clay is selling at from $7 to $11 per ton, at mine.

CHLORINE.—Consumption of chlorine is maintained in fair volume. Prices are holding to schedule. Chlorine is quoted at $1.75 per 100 pounds in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market is practically unchanged. The grades of gum rosin used in the paper mills are now quoted at from $3.90 to $4.05 per 280 pounds, in barrels, at works. Wood rosin is selling at $3.90 per 280 pounds, in barrels, on dock.

SALT CAKE.—Conditions in the salt cake market are fairly satisfactory. Prices are easy. Salt cake is quoted at from $15 to $16; chrome salt cake at from $14 to $15 per ton, in bulk, at works. Imported salt cake is selling at from $15 to $15.50 per ton, ship side.

SODA ASH.—Most of the business transacted in the soda ash market is routine. Prices are unchanged. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1; in bags, $1.25; and in barrels, $1.38.

STARCH.—The demand in the starch market continues more or less steady. Prices are easier. Special paper making starch is now quoted at $2.62 in bags; and at $2.89, in barrels, per 100 pounds, at works.

SULPHATE OF ALUMINA.—The sulphate of alumina market continues steady. Prices are unaltered. Commercial grades are quoted at from $1.25 to $1.49; while iron free is selling at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—Business in the sulphur market is fairly active. Sulphur is quoted at $18 per long ton, on orders of 1,000 tons, or over, on yearly contracts; and at $20 per ton for any smaller quantity over that period. On spot and near by car loads, the quotation is $21 per ton.

TALC.—The talc market continues sufficiently active for current needs. Domestic talc is quoted at from $14 to $18 per ton, in bulk, at mine; imported talc is selling at from $17 to $22 per ton, in bags, ship side.

The Sonoco Products Company, Hartsville, S. C., has sent out announcements of the death of its president Charles Westfield Coker, on Saturday, November 21.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	6.50	@	38.00
Bonds	5.00	@	53.25
Index	6.00	@	12.00
Writings—			
Extra Superfine	14.00	@	32.00
Superfine	14.00	@	32.00
Tub sized	10.00	@	15.00
Engine sized	6.75	@	11.00
Book, Cased—			
S. & S. C.	5.25	@	—
M. F.	5.00	@	—
Coated and Enamel	6.25	@	9.75
Lithograph	6.75	@	11.25
Tissues—Per Ream—			
White No. 1	.65	@	.70
Anti-Tarnish M. G. only	.65	@	.70
Colored	.70	@	.90
White No. 2	.55	@	.60
Kraft	.65	@	.70
Manila	.55	@	.60
Manila—			
No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.00	@	5.25
No. 2 Wood	3.50	@	4.00
Butchers	3.37½	@	—
Fibre Papers—			
No. 1 Fibre	4.25	@	5.50
No. 2 Fibre	4.00	@	4.75
Common Bogus	1.50	@	3.00
Screenings	2.00	@	3.00
Card Middies	4.00	@	5.00
Glassine—			
Bleached, basis 25 lbs., No. 1	.09¼	@	—
No. 2	.11¼	@	—
Bleached, basis 20 lbs.	.11¼	@	—

(Delivered New York)

News, per ton—			
Rolls, contract	57.00	@	—
Rolls, spot	57.00	@	—
Sheets	62.00	@	—
Side Runs	42.00	@	46.00
Kraft—			
No. 1 Domestic	4.50	@	5.75
No. 2 Domestic	3.00	@	4.25
Southern	2.75	@	4.00
Imported	6.00	@	7.00
Boards—per ton—			
News	24.00	@	26.00
Straw	34.50	@	45.00
Chip	24.00	@	26.00
Binders' Boards	62.00	@	70.00
Standard 85 Test Liner	32.50	@	35.00
Sgl. Mla. Ll. Chip	35.00	@	40.00

(F. o. b. Mill)

Wood Pulp Boards	70.00	@	80.00

Mechanical Pulp

(On Dock)

No. 1 Imported—			
Moist	22.00	@	24.00
Dry	22.00	@	24.00

(F. o. b. Mill)

No. 1 Domestic	25.00	@	30.00

Chemical Pulp

(On Dock, Atlantic Ports)

Sulphite (Imported)—			
Bleached	2.10	@	3.50
Easy Bleaching	1.60	@	1.75
No. 1 strong unbleached	1.50	@	1.75
Mitscherlich unbleached	1.55	@	1.75
No. 2 strong unbleached	1.40	@	1.50
No. 1 Kraft	1.50	@	1.75
No. 2 Kraft	1.40	@	1.50
Sulphate—			
Bleached	2.35	@	2.50

(F. o. b. Pulp Mill)

Sulphite (Domestic)—			
Bleached	2.00	@	4.00
Easy Bleaching	1.75	@	1.90
News	1.50	@	1.65
Mitscherlich	2.40	@	2.55
Kraft (Domestic)	1.60	@	2.75

(Delivered Paper Mills)

Soda Bleached	2.75	@	—

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	6.50	@	7.00
New White, No. 2	5.50	@	6.00
Silesias No. 1	5.25	@	5.50
New Unbleached	7.00	@	7.50
New Blue Prints	4.00	@	4.50
New Soft Blacks	3.50	@	4.00
Blue Overall	5.00	@	5.25
Fancy	3.00	@	3.50
Washables	2.75	@	3.00
Mixed Khaki Cuttings	3.50	@	4.00
Pink Corset Cuttings	5.00	@	5.50
O. D. Khaki Cuttings	4.50	@	4.75
Men's Corduroy	3.00	@	3.50
New Mixed Blacks	3.00	@	3.25

Old Rags

White, No. 1—			
Repacked	5.25	@	5.75
Miscellaneous	4.25	@	4.75
White, No. 2—			
Repacked	3.00	@	3.50
Miscellaneous	2.30	@	2.50
St. Soiled, White	1.50	@	1.75
Thirds and Blues—			
Repacked	2.25	@	2.50
Miscellaneous	1.65	@	1.85
Black Stockings	3.25	@	3.75
Roofing Rags—			
Cloth Strippings	1.25	@	1.30
No. 1	1.25	@	1.30
No. 2	.90	@	1.00
No. 3	.70	@	.80
No. 4	.65	@	.70
No. 5A	.50	@	.60

Foreign Rags

New Rags

New Dark Cuttings	1.50	@	1.60
New Mixed Cuttings	2.00	@	2.20
New Light Silesias	3.80	@	4.00
Light Flannelettes	4.25	@	4.50
Unbleached Cuttings	6.00	@	6.25
New White Cuttings	4.75	@	5.00
New Light Oxfords	4.00	@	4.25
New Light Prints	2.25	@	2.50

Old Rags

No. 1 White Linens	5.75	@	6.00
No. 2 White Linens	5.00	@	5.25
No. 3 White Linens	3.50	@	4.00
No. 4 White Linens	2.00	@	2.50
No. 1 White Cotton	4.25	@	4.75
No. 2 White Cotton	3.25	@	3.50
No. 3 White Cotton	2.50	@	3.00
No. 4 White Cotton	1.45	@	1.60
Extra Light Prints	1.90	@	2.10
Ord. Light Prints	1.60	@	1.75
Med. Light Prints	1.40	@	1.55
Dutch Blue Cottons	1.50	@	1.60
French Blue Linens	2.25	@	2.40
German Blue Linens	2.00	@	2.10
German Blue Cottons	1.35	@	1.40
Checks and Blues	1.25	@	1.30
Lindsay Garments	.75	@	.80
Dark Cottons	.70	@	.75
Old Shopperies	.55	@	.60
New Shopperies	.60	@	.65
French Blues	1.40	@	1.50

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	1.10	@	1.20
Domestic	1.15	@	1.25
Wool Tares, light	1.05	@	1.10
Wool Tares, heavy	1.10	@	1.15
Bright Bagging	1.05	@	1.10
Small Mixed Rope	.90	@	1.00
Manila Rope—			
Foreign	1.65	@	1.75
Domestic	1.75	@	1.90
New Burlap Cut	1.70	@	1.80
Hessian Jute Threads—			
Foreign	2.60	@	2.75
Domestic	2.80	@	3.00

Old Waste Papers

(F. o. b. New York)

Shavings—			
Hard, white, No. 1	2.55	@	2.75
Hard, white, No. 2	1.90	@	2.00
White envelope cuttings	2.05	@	2.15
Soft, white, No. 1	1.70	@	1.80
Flat Stock—			
Stitchless	.70	@	.80
Overissue Mag.	.70	@	.80
Solid Flat Book	.60	@	.70
Crumpled No. 1	.45	@	.50
Solid Book Ledger	1.75	@	1.85
Ledger Stock	.60	@	.70
New B. B. Chips	.20	@	.30
Manilas—			
New Env. Cut	1.75	@	1.85
New Cuttings	1.40	@	1.50
Extra No. 1 old	1.05	@	1.15
Print	.45	@	.50
Bogus Wrapper	.45	@	.50
Container	.25	@	.30
Old Kraft Machine—			
Compressed bales	1.00	@	1.10
News—			
No. 1 White News	1.60	@	1.65
Strictly Overissue	.35	@	.45
Strictly Folded	.25	@	.30
No. 1 Mixed Paper	.15	@	.23
Common Paper			Nominal

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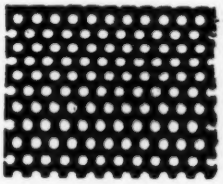

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RAGS — BURLAP
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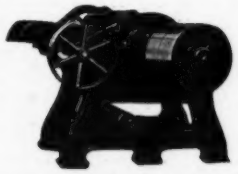

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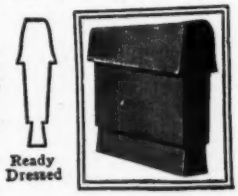

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WE MAKE ANY STYLE OR SIZE WANTED

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THE N. P. BOWSHER CO., So. Bend, Ind.

Twines

(F. o. b. Mill)

Cotton—			
B. C., 18 basis	.30	@	.32
No. 1	.20	@	.22
No. 2	.19	@	.20
No. 3	.17	@	.18
A. Italian, 18 basis	.36	@	.37
Finished Jute—			
Dark, 18 basis	.18	@	.20
Light, 18 basis	.20	@	.22
Jute Wrapping, 3-6 Ply—			
No. 1	.13	@	.14
No. 2	.11	@	.12
Tube Rope—			
4-ply and larger	.10¾	@	.11¾
Fine Tube Rope—			
4-ply	.11	@	—
3-ply	.12	@	—
2-ply	.13	@	—
Paper Makers Twine Balls	.07	@	—
Box Twine, 2-3 ply	.07	@	.08
Jute Rope	.09	@	.10
Amer. Hemp, 6	.27	@	.29
Java Sisal—			
No. 1 Basis	.10	@	—
No. 2 Basis	.09	@	—
New Zealand Sisal	.10	@	—
Sisal Lath Yarn—			
No. 1	.12	@	.14
No. 2	.10	@	.12
Manila Twine	.21	@	.22

CHICAGO

Paper

(F. o. b. Mill)

Rag Bond	.30	@	.53¼
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.06¾	@	.11
Superfine Writing	.18	@	.24
No. 1 Fine Writing	.14	@	.18
No. 2 Fine Writing	.12	@	.14
No. 3 Fine Writing	.08½	@	.12
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¾
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
No. 1 Manila	.04¾	@	.05¾
No. 1 Fibre	.04¾	@	.05¼
No. 2 Manila	.04¼	@	.04¾
Butcher's Manilt	.04	@	.04½
No. 1 Kraft	4.50	@	5.00
Southern Kraft	3.00	@	3.25
No. 2 Kraft	3.00	@	3.25
Wood Tag Boards	.04¾	@	.06¼
Sulphite Screenings	.03	@	.03¼
Manila Tissue	.07	@	.07¼
White Tissue	.07¼	@	.07½

(Delivered Central Territory)

News, per ton—			
Rolls, contract	57.00	@	—
Sheets	62.00	@	—
Boards, per ton—			
Plain Chip	30.00	@	35.00
Solid News	32.50	@	37.50
Manila Lined Chip	40.00	@	45.00
Container Lined—			
85 Test	50.00	@	55.00
100 Test	55.00	@	60.00

Old Papers

(F. o. b. Chicago)

Shavings—			
No. 1 Hard White	1.95	@	2.05
No. 1 Soft White	1.80	@	1.90
Ledger & Writings	.60	@	.70
Solid Books	.60	@	.70
Blanks	1.40	@	1.55
Krafts	1.15	@	1.25
New Kraft Cuts	1.30	@	1.45
Manila Env. Cuts	1.40	@	1.50
Ex. No. 1 Manila	1.25	@	1.30
Print Manila	.40	@	.45
Overissue News	.40	@	.50
Old Newspapers—			
No. 1	.35	@	.45
No. 2	.30	@	.35
Mixed Papers—			
No. 1	.25	@	.30
No. 2	.25	@	.25
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper

(F. o. b. Mill)

Bonds	.05	@	.40
Ledgers	.07	@	.40
Writings—			
Superfine	.12	@	.18
Extra fine	.16	@	.22
Fine	.15	@	.26
Fine, No. 2	.12	@	.25
Fine, No. 3	.07	@	.20
Book, M. F.	.04¾	@	.07
Book, S. S. & C.	.05	@	.07½
Book, Coated	.07	@	.16
Coated Lithograph	.06	@	.11
Label	.07	@	.11
No. 1 Jute Manila	.07	@	.09
Manila Sul., No. 1	.03¾	@	.05½
Manila No. 2	.03	@	.04
No. 1 Kraft	.05¼	@	.06
No. 2 Kraft	.03¾	@	.04¼
Southern Kraft No. 1	—	@	.04
Southern Kraft No. 2	—	@	.03¾
Common Bogus	.03	@	.04

(Delivered Philadelphia)

News Print Rolls	58.00	@	62.00
Straw Board	50.00	@	—
News Board	30.00	@	32.00
Chip Board	25.00	@	27.50
Wood Pulp Board	85.00	@	95.00
Binder Boards—			
No. 1, per ton	73.00	@	75.00
No. 2, per ton	63.00	@	65.00
Carload lots	62.00	@	67.00
Tarred Felts—			
Regular	52.25	@	54.25
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1.	.06	@	.06½
New White, No. 2.	.05	@	.05½
Light Silesias	.05	@	.05½
Silesias, No. 1	.06	@	.08
Black Silesias, soft.	.05	@	—
New Unbleached	.06	@	.06½
Washable, No. 1	.02½	@	.03
Blue Overall	.05	@	.05½
Cottons—According to grades—			
Washable, No. 2	.02	@	.02½
New Blue	.02	@	.02½
Fancy	.03	@	.03¼
New Black Soft	.03	@	.03½
New Light Seconds	.01¾	@	.02
New Dark Seconds	1.85	@	2.00
Khaki Cuttings—			
No. 1 O.D.	.04½	@	.05
No. 2 Mixed	.03½	@	.04
Corduroy	.02½	@	.03
New Canvas	.06½	@	.07
New Black Mixed.	.03	@	.03½

Domestic Rags (Old)

White No. 1—			
Repacked	3.50	@	4.00
Miscellaneous	2.25	@	2.75
M. G.	4.50	@	—
Thirds and Blues—			
Miscellaneous	1.25	@	1.50
Repacked	1.75	@	2.00
Black Stockings (Export)	3.80	@	4.00
Roofing Stock—			
Foreign No. 1	1.15	@	1.25
Repacked	.80	@	.90

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.50	@	1.60
Domestic	1.75	@	—
Manila Rope	2.25	@	2.50
Sisal Rope	1.25	@	1.50
Mixed Rope	1.10	@	1.25
Scrap Burlaps—			
No. 1	1.50	@	1.60
No. 2	1.10	@	1.20
Wool Tares, heavy	3.00	@	—
Mixed Strings	1.15	@	1.25
No. 1 New Light Burlap	2.50	@	2.75
New Burlap Cuttings	2.00	@	2.25

Old Papers

(F. o. b. Phila.)

Shavings—			
No. 1 Hard White.	2.30	@	2.50
No. Hard White.	2.00	@	2.25
No. 1 Soft White.	1.75	@	2.00
No. 2 Soft White.	1.40	@	1.50
No. 1 Mixed	.75	@	.80
No. 2 Mixed	.50	@	.55
Solid Ledger Stock.	1.35	@	1.40
Writing Paper	.80	@	1.00
No. 1 Books, heavy	.70	@	.75
No. 2 Books, light	Normal		
No. 1 New Manila	1.60	@	1.75
No. 1 Old Manila	1.25	@	1.30
Print Manila	.50	@	.55
Container Manila	.40	@	.45
Old Kraft	1.10	@	1.20
Common Paper	.30	@	.40
No. 1 Mixed Paper	.35	@	.45
Straw Board, Chip	.35	@	.45
Binders Board, Chip	.35	@	.45
Corrugated Board	.45	@	.50
Overissue News	.50	@	.55
Old Newspaper	.30	@	.35

BOSTON

Paper

(F. o. b. Mill)

Ledgers—			
Sulphite	.07½	@	.12½
Rag Content	.15	@	.30
All Rag	.38	@	.52½
Bonds—			
Sulphite	.06½	@	.11½
Rag content	.15	@	.30
All rag	.36½	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06½
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.04½	@	.05½
No. 2 Kraft	—	@	.03

(F. o. b. Boston)

Southern Kraft	—	@	.03

(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)

Common Bogus	.02	@	.02¾

(Delivered New England points)

News Print, rolls	—	@	56.50
Straw Board, rolls	.009	—	@52.50
Straw Board in Sheets, basis 35s to 70s	—	@	50.00
Filled News Board	27.50	@	30.00
Chip Board	—	@	25.00
Chip Board (Creasing)	27.50	@	30.00
Single Manila Lined Chip	—	@	35.00
Single White, Patent Coated News Board—			
Binder	52.50	@	60.00
Wood Pulp Board	70.00	@	75.00
Binder Boards	67.50	@	75.00

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Hard White	2.75	@	3.50
No. 2 Hard White	2.25	@	2.50
No. 1 Soft White	1.75	@	2.00
No. 2 Mixed	.50	@	.55
No. 1 Mixed	.75	@	.85
Solid Ledger Books	1.75	@	2.00
Overissue Ledger Stock	1.35	@	1.60
Mixed Ledgers	1.15	@	1.30
No. 1 Books, heavy	.65	@	.75
No. 1 Books, light	—	@	.45
Crumpled Stitchless Book Stock	1.00	@	1.25
Manila Env. Cuttings	1.85	@	2.00
No. 1 Old Manila	—	@	1.00
White Blank News	1.50	@	1.60
Kraft No. 1	.85	@	1.05
Manila	.90	@	1.00
No. 1 Mixed Paper	.20	@	.22½
Print Manila	.40	@	.45
Overissue News	.40	@	.45
Old Newspapers	.27½	@	.32½
Box Board, Chip	.20	@	.25
Corrugated Boxes	.37½	@	.47½

Bagging

(F. o. b. Boston)

Gunny No. 1—			
Foreign	—	@	1.15
Domestic	1.40	@	1.50
Manila Rope—			
Foreign	1.50	@	1.75
Domestic	1.75	@	2.00
Transmission Rope	1.25	@	1.40
Mixed String	.35	@	.40
Jute Rope	1.00	@	1.15
Jute Carpet Threads	.75	@	.90
Bleachery Burlap	2.50	@	2.75
No. 1 Scrap Burlap	1.10	@	1.25
Scrap Sisal	1.35	@	1.45
Scrap Sisal for shredding	1.50	@	1.60
Wool Tares, heavy	1.25	@	1.30
New Burlap Cutting	1.50	@	1.75
Australian Pouches	2.00	@	2.25
Heavy Baling Bagging	1.50	@	1.60
Paper Mill Bagging	.90	@	1.05
Bagging No. 2	.30	@	—
No. 1 Burlap	—	@	3.50

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New White No. 1.	.06½	@	.07
New White No. 2.	—	@	.06
Silesias No. 1	.06	@	.06¼
New Black Silesias	.02½	@	.02¾
New Unbleached	—	@	.08
Fancy	.04	@	.04½
Washable	.04	@	.04½
Cottons—According to grades—			
Blue Overalls	.05	@	.06
New Black, soft	.04	@	.04¼
Khaki Cuttings	.04	@	.04½
O. D. Khaki	.04½	@	.05
Corduroy	.03	@	.03½
New Canvas	.08	@	.08½

Domestic Rags (Old)

(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	4.75	@	5.25
Miscellaneous	—	@	4.00
White No. 2—			
Repacked	.04½	@	.05
Miscellaneous	.03½	@	.04
Twos and Blues	2.50	@	2.75
Thirds and Blues—			
Repacked	1.60	@	1.80
Miscellaneous	1.00	@	1.20
Black Stockings	3.25	@	3.50
Roofing Stock—			
No. 1	.48	@	.53
No. 2	.43	@	.48
No. 3	.38	@	.43

Foreign Rags

Dark Cottons	—	@	.70

(F. o. b. Boston)

New No. 1 White Shirt Cuttings	6.50	@	6.75
Dutch Blues	—	@	1.80
New Checks & Blues	4.00	@	4.50
Old Fustians	1.55	@	1.65
Old Linsey Garments	.80	@	.90

TORONTO

Paper

(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.10¾	@	—
No. 2 Sulphite	.08½	@	—
No. 1 Colored	.11¾	@	—
No. 2 Colored	.09	@	.10½
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
Book—			
No. 1 M. F. (Carloads)	6.65	@	—
No. 3 M. F. (Carloads)	6.20	@	—
No. 1 S. C. (carloads)	7.15	@	—
No. 3 S. C. (carloads)	6.65	@	—
No. 4 S. C. (carloads)	5.70	@	—
No. 1 Coated and Litho	12.50	@	—
No. 2 Coated and Litho	11.50	@	—
No. 3 Coated and Litho	10.00	@	11.50
Coated tinted	14.00	@	—
Wrapping—			
Rag Brown	4.60	@	—
White Wrap	5.10	@	—
"B" Manila	5.00	@	—
No. 1 Manila	5.60	@	—
Fiber	5.60	@	—
Kraft, M. F.	5.98	@	—
Kraft No. 2	5.60	@	—

(Delivered Toronto)

News, per ton—			
Rolls (contract)	56.50	@	57.00
Sheets	61.50	@	—

Pulp

(F. o. b. Mill)

Ground Wood	30.00	@	32.00
Sulphite easy bleaching	50.00	@	—
Sulphite, news grade	44.00	@	—
Sulphite, bleached	62.50	@	75.00
Sulphate	60.00	@	—

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	2.85	@	—
Soft White	2.40	@	—
White Blk. News	1.50	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	.90	@	—
Light and Crumpled Book Stock	.80	@	—
Ledgers and Writings	1.00	@	—
Manilas—			
New Manila Cut	1.70	@	—
Printed Manilas	.65	@	—
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ESTABLISHED 1872

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